Leak Detection and Repair (LDAR) Monitoring Plan

40 CFR Part 264 Subpart BB
40 CFR Part 63 Subpart DD
40 CFR Part 63 Subpart H

Prepared for:

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1.0 Introduction

Clean Harbors Recycling Services of Ohio, LLC (Clean Harbors Ohio) owns and operates the facility located at 581 Milliken Drive, Hebron, Ohio, 43025 (Hebron Recycle Center). Clean Harbors Ohio has been the operator since March 2008 and is currently implementing an LDAR program with the monitoring and inspection requirements set forth in U.S. EPA's Resource Conservation and Recovery Act of 1976 (RCRA), as well as the U.S EPA's Clean Air Act of 1970 (CAA).

The United States Environmental Protection Agency (EPA) developed the RCRA air emissions standards, specified in 40 CFR Part 264 Subpart AA (Subpart AA), 40 CFR Part 264 Subpart BB (Subpart BB), and 40 CFR Part 264 Subpart CC (Subpart CC), to control emissions from equipment involved in the generation, transportation, treatment, storage or disposal of hazardous waste. The EPA also developed the National Emission Standards for Hazardous Air Pollutants (NESHAP) standards, specified in 40 CFR Part 63 Subpart DD (Subpart DD), to control emissions from off-site waste management or recovery operations that are also major sources of hazardous air pollutant (HAP) emissions. Subpart BB allows facilities subject to both Subpart BB and regulations in 40 CFR Parts 60, 61, or 63 to choose to comply with the requirements of Subpart BB or alternatively to comply with requirements of 40 CFR Parts 60, 61, or 63. Clean Harbors Ohio has elected to comply with Subpart DD as an alternative to Subpart BB.

Since there is potential for regulatory overlap, between the RCRA and CAA requirements, industry is not expected to comply with both regulatory standards. To comply with both CAA and RCRA, 40 CFR Part 63 Subpart H (Subpart H) may be used to satisfy Subpart DD LDAR requirements for major sources of HAP emissions. In the past, there was an option to utilize 40 CFR Part 61 Subpart V (Subpart V); however, as of March 18, 2016 the Subpart V applicability was sunset, requiring implementation of Subpart H to comply with both Subpart DD and Subpart BB. The reference, eliminating the option to utilize Subpart V, appears in the Final Rule preamble on page 4, Section A of the applicable volume of the Federal Register. Therefore, at Clean Harbors Ohio the LDAR Program will reference Subpart H for leak detection and repair requirements.

Clean Harbors Ohio is a permitted Treatment, Storage, and Disposal Facility (TSDF) which receives hazardous waste from off-site sources, and then processes, stores, treats, recycles, and/or transfers the waste, used oil and used solvents.

This LDAR Monitoring Plan (Plan) document is not mandated by the regulations, but is instead an internal document designed to be used by the Clean Harbors Ohio operators responsible for compliance, to implement and maintain a robust LDAR program consistent with the regulations. No provision in this Plan shall conflict with, or take precedence over, any applicable provision of the regulations. The Plan describes best practices and specific program management procedures that Clean Harbors Ohio will use to comply with the requirements of the above listed regulations.

2.0 Plan Update History

The Plan is to be kept current and will be updated as warranted to ensure the Clean Harbors Ohio facility maintains an accurate and complete LDAR program, consistent with the applicable regulations. The Plan amendment history is summarized in Table 1 and any future updates will also be documented in this section.

Table 1
LDAR Monitoring Plan Updates

Date	Summary of Document Amendment
	Original LDAR Monitoring Plan
	Version 2
September 2018	Version 3
October 2019	Version 4

3.0 Regulatory Applicability

Subpart DD standards apply to owners and operators of off-site material waste management or recovery operations that are considered to be major sources of HAP emissions, as defined in 40 CFR 63.2 (i.e., potential to emit 10 tons per year or more of any single HAP, or 25 tons per year or more of any combination of HAPs). Clean Harbors Ohio is a waste management operation that receives off-site materials that can be defined as hazardous waste and is, therefore, considered to be an affected source. The facility is regulated as a TSDF under 40 CFR part 264. According to the date that construction (or reconstruction) of an affected source commenced and the date an affected source receives off-site material for the first time, as established in 40 CFR §63.680(i) through (iii), the owner or operator of an affected source shall control the HAPs emitted from equipment component leaks in accordance with Subpart H.

According to Subpart DD, an "equipment component" is defined as a pump, compressor, agitator, pressure relief device, sampling connection system, open-ended valve or line, valve, connector, or instrumentation system. Subpart DD is applicable to equipment components that contain, or contact, off-site material having a total HAP concentration equal to or greater than 10 percent by weight, and which are intended to operate for at least 300 hours per calendar year in off-site material service. Off-site material is defined as a waste, used oil or used solvent that is not produced or generated within the plant site; the material is delivered, transferred, or otherwise moved to the plant site from a location outside the boundaries of the facility. Additionally, the off-site material contains one or more of the HAPs listed in Appendix 1 of this Plan, based on the material composition at point-of-delivery. Waste is defined as a material generated from industrial, commercial, mining, or agricultural operations or from community activities that is discarded, discharged, or is being accumulated, stored, or physically, chemically, thermally, or biologically treated prior to being discarded or discharged. Used oil is defined as any oil refined from crude oil or any synthetic oil that has been used and as a result of such use is contaminated by physical or chemical impurities. Used solvent is defined as a mixture of aliphatic hydrocarbons or a mixture of one- and two-ring aromatic

hydrocarbons that has been used as a solvent and as a result of such use is contaminated by physical or chemical impurities.

40 CFR Part 264 Subpart AA, BB, and CC standards apply to owners and operators of hazardous waste TSDFs with equipment that contains and/or contacts hazardous wastes with organic concentrations of at least 10 percent by weight that are managed with units subject to the permitting requirements of 40 CFR Part 270. These regulations are intended to control organic air emissions resulting from the handling of hazardous waste materials. Specifically, Subpart AA applies to process vents; Subpart BB applies to equipment leaks from pumps, compressors, pressure relief devices (PRDs), sampling connection systems, open-ended lines, flanges and connectors; and Subpart CC applies to tanks, surface impoundments and containers.

According to Subpart BB, equipment is defined as any affected valve, pump, compressor, PRD, sampling connection system, open-ended valve or line, flange or other connector, and any required control device or system.

Subpart H standards apply to equipment leaks that are intended to operate in organic HAP service for 300 hours or more during any calendar year within a source. Compliance with the provisions of Subpart H shall be deemed compliance with the standards of Subpart BB as referenced in 40 CFR §63.160(c)(1). Clean Harbors Ohio implements Subpart H to cover equipment leaks under Subpart BB and Subpart DD.

According to Subpart H, equipment is defined as any pump, compressor, agitator, PRD, sampling connection system, open-ended valve or line, other valve, connector, surge control vessel, bottoms receiver, instrumentation system, that is in organic HAP service, including any control device or system required by Subpart H. Sources that are subject to applicability provisions are also subject to inspection and repair provisions, with the exception of devices and circumstances specified in Sections 3.1 and 3.2 of this Plan.

In Subpart H, a connector is defined as a flanged, screwed, or other joined fitting used to connect two pipe lines or a pipe line and a piece of equipment. A common type of connector is a flange. Joined fittings that are welded completely around the circumference of the interface are not considered connectors for the purpose of this regulation. Connectors that are inaccessible, or that are ceramic, or ceramic-lined (i.e., porcelain, glass, or glass-lined), are exempt from the monitoring, recordkeeping and reporting requirements of Subpart H; however, if any such connector is observed to be leaking by visual, audible or olfactory means, it must be repaired as soon as practicable, but no later than 15 calendar days after detection, unless it is unsafe to do so.

A PRD or valve is defined in Subpart H as a safety device that is used to prevent operating pressures from exceeding the maximum allowable working pressure of the process equipment it serves. A common type of pressure relief device is a spring-loaded pressure relief valve. Devices that are actuated by a vacuum, or r by a pressure of less than or equal to 2.5 psig, are not considered to be

pressure relief devices under Subpart H. Conservation vents and emergency vents are also not considered to be PRDs.

Stream Determination

Clean Harbors Ohio conducted an evaluation of the hazardous waste streams at the Hebron Recycle Center facility, in order to determine which streams and equipment were subject to the requirements of Subparts BB, DD and H. See **Exhibit 1: LDAR Applicability**, for a list of Hazardous Waste Management Units, Areas, Subareas and Streams and their respective applicability to Subparts BB, DD and H. All streams applicable to Subpart H are assumed to be in either gas/vapor or light liquid service. Clean Harbors Ohio has determined the only streams not applicable to the regulations are water, caustic and nitrogen streams.

3.1 Exemptions from Regulatory Applicability

Pursuant to Subparts DD, BB and H, this Plan is applicable to all potential sources as listed in Section 3.0, with the exception of the items listed in Table 2, as specified in the applicable regulations. See **Exhibit 2: LDAR Exemptions**, for a list of Subareas that are exempt from Subparts DD, BB and H and an explanation why.

Table 2
Exemptions to Applicability of Subparts DD, BB, and H
General Standards

Regulation	Exemption	Applicability Exemptions	Clean Harbors Ohio
40 CFR Part 63, Subpart DD, §63.680(b)(2)(i)	Excluded from Subpart DD	Household waste.	Not applicable
40 CFR Part 63, Subpart DD, §63.680(b)(2)(ii)	Excluded from Subpart DD	Radioactive mixed waste.	Not applicable
40 CFR Part 63, Subpart DD, §63.680(b)(2)(iii)	Excluded from Subpart DD	Waste that is generated as a result of implementing remedial activities under RCRA corrective action authorities, CERCLA authorities or similar.	Not applicable
40 CFR Part 63, Subpart DD, §63.680(b)(2)(iv)	Excluded from Subpart DD	Waste containing a HAP that is generated by residential households and subsequently is collected as community service by government agencies, businesses or other organizations for the purpose of promoting the	Not applicable

Regulation	Exemption	Applicability Exemptions	Clean Harbors Ohio
		proper disposal of this waste.	
40 CFR Part 63, Subpart DD, §63.680(b)(2)(v)	Excluded from Subpart DD	Waste that is transferred from a chemical manufacturing plant or other facility for which the owner or operator of the facility from which the waste is transferred has complied with the provisions of the air emission control standards for process wastewater specified by another subpart of this part.	Not applicable
40 CFR Part 63, Subpart DD, §63.680(b)(2)(vi)	Excluded from Subpart DD	Waste that is transferred from a chemical manufacturing plant, petroleum refinery, or coke by-product recovery plant which is subject to 40 CFR Part 61, Subpart FF.	Not applicable
40 CFR Part 63, Subpart DD, §63.680(d)	Facility-wide exemption	Exempt from §63.682 through §63.699 when the total annual quantity of the HAP that is contained in the off-site material received at the plant site is less than 1 megagram per year.	Not applicable
40 CFR Part 264, Subpart BB, §264.1050(b)	Excluded from Subpart BB	Equipment that contains or contacts hazardous wastes with organic concentrations less than 10 percent by weight.	Wastewater tanks and associated processing equipment
40 CFR Part 264, Subpart BB, §264.1050(g)	Excluded from Subpart BB	Pharmaceutical manufacturing facility, commonly referred to as the Stonewall Plant.	Not applicable
40 CFR Part 264, Subpart BB, §264.1050(h)	Excluded from Subpart BB	Purges coatings and solvents from surface coating operations subject to NESHAP for the surface coating of automobiles and light-duty trucks in 40 CFR Part 63, Subpart IIII.	Not applicable
40 CFR Part 63, Subpart H, §63.160(e)	Excluded from Subpart H	Lines and equipment not containing process fluids, including utilities, and other non-	Water lines for boilers to generate steam and coolers, nitrogen, caustic

Regulation	Exemption	Applicability Exemptions	Clean Harbors Ohio
		process lines, such as heating and cooling systems which do not combine their materials with those in the processes they serve.	lines.
40 CFR Part 63, Subpart H, §63.160(f)	Excluded from Subpart H	Research and development facilities or bench-scale batch processes, regardless of whether the facilities or processes are located at the same plant site as a process subject to Subpart H.	Not applicable

3.2 Exemptions from Equipment Leak Requirements

The equipment leak standards of Subparts DD, BB and H apply to equipment components as listed in Section 3.0, with the exception of those exclusions identified in Table 3.

Table 3
Exemptions to Applicability of Subparts DD, BB, and H
Equipment Leak Requirements

Regulation	Exemption Types	Exemption Applicability	Clean Harbors Ohio
40 CFR Part 63, Subpart DD, §63.680(c)(3)(i)	Exempt from equipment leak requirements	Equipment components that are not a pump, compressor, agitator, pressure relief device, sampling connection system, open-ended valve or line, other valve, connector, or instrumentation system.	No other components identified at this time that do not meet the definition of equipment components
40 CFR Part 63, Subpart DD, §63.680(c)(3)(ii)	Exempt from equipment leak requirements	Total HAP concentration less than 10 percent by weight.	Equipment with water, nitrogen and caustic materials do not contain, or do not contact, off-site material having a total concentration of 10% HAP or more
40 CFR Part 63, Subpart DD, §63.680(c)(3)(iii)	Exempt from equipment leak requirements	Equipment operates less than 300 hours per calendar year in off-site material service.	Not applicable
40 CFR Part 264, Subpart	Excluded from requirements	Equipment that is in vacuum service.	Equipment does operate in vacuum service

Regulation	Exemption Types	Exemption Applicability	Clean Harbors Ohio
BB, §264.1050(e)	§264.1052 to §264.1060		intermittently (see Exhibit 2)
40 CFR Part 264, Subpart BB, §264.1050(f)	Excluded from requirements of §264.1052 through §264.1060	Equipment operates less than 300 hours per calendar year.	Not applicable
40 CFR Part 63, Subpart H, §63.162(d)	Excluded from requirements of Subpart H	Equipment that is in vacuum service.	Equipment does operate in vacuum service intermittently (see Exhibit 2)
40 CFR Part 63, Subpart H, §63.162(d)	Excluded from requirements of §63.163 through §63.174 of Subpart H and §63.178 if identified	Equipment operates less than 300 hours per calendar year in organic HAP service.	Not applicable

4.0 Training Program

Clean Harbors Ohio implements a training program to ensure that the entire LDAR Team understands procedures, forms, regulations and expectations. The training program consists of presentations, tests, field evaluations, and handouts. All modules of the training program will be attended by each member of the LDAR Team, or any other individual with a role or responsibility in the LDAR program, at minimum annually. More frequent training may be implemented as needed. See **Exhibit 3: Training Program Overview** for more information.

5.0 Roles and Responsibilities

Table 4 provides a summary of Clean Harbors Ohio LDAR Team responsibilities, by job title. If a position listed in Table 4 does not currently exist at the Hebron Recycle Center, then the responsibilities will be reassigned to the Maintenance Manager or other assigned official.

Table 4
LDAR Team Responsibilities

Job Title	Responsibility
Senior Facility Compliance	• Oversees the entire LDAR program; • Carries out or facilitates general program compliance management tasks;

Job Title	Responsibility
Manager	• Conducts monthly, quarterly, and annual progress meetings with the LDAR Team; • Reviews Clean Harbors Ohio compliance database on a monthly basis; • Prepares cover letters for reports and submits reports to regulatory agencies; and • Reviews regulatory applicability and updates the Plan if required.
Maintenance Manager	• Daily on-site management of the LDAR program; • Prepares a weekly report of "like-in-kind" changes for the LDAR Technician(s); • Daily communications with the LDAR Technician(s); • Repair scheduling and tracking; and • Sign-off on all "Delays of Repair" designations or "Non-Repairable" equipment. • Maintains lists of all leaks found, leaks repaired, and leaks with Delay of Repair designations, and submits documentation to the Senior Compliance Manager semi-annually.
LDAR Technician	• Monthly auditing of the equipment inventory; • Maintain integrity of the inventory through Management of Change (MOC); • Daily Method 21 measurement device calibrations; • Daily Method 21 leak monitoring/inspections; • Daily re-inspection of leaks; • Daily documentation of all calibrations, monitoring/inspections and re-inspections; • Once every 3-months (or upon return from maintenance), perform calibration-precision test on measurement devices; • Upon return from maintenance or in the event of a flow change, perform response-time test on measurement devices; and • Submit all data to quality analyst for review.
Quality Analyst	• Prepares monitoring schedule and logs for monitoring tasks; • Daily QA/QC review of data documented by LDAR Technician(s); • Ensures all recordkeeping and reporting requirements are met semi-annually; • Uploads all documentation to the Clean Harbors Ohio compliance database for the LDAR program; • Prepares weekly progress/status reports and submits to the Senior Facility Compliance Manager for review; and • Manages and maintains Process Leak Tracking and Retest Form and submits to the Senior Compliance Manager for report preparation.
Senior Compliance Manager	• Prepares semi-annual reports.

6.0 Leak Detection and Repair (LDAR) Program

The Leak Detection and Repair (LDAR) Program is intended to control emissions from equipment leaks known as fugitive emissions. LDAR is a work practice designed to identify leaking equipment so

that emissions can be reduced through repairs. An equipment component must be monitored at regular intervals according to the applicable EPA regulations. Once found leaking, the component must be repaired or replaced within a specified time frame. In addition to the monitoring and repair requirements described, Clean Harbors Ohio will prepare and maintain an equipment component inventory to satisfy EPA identification requirements.

6.1 Identification of Equipment

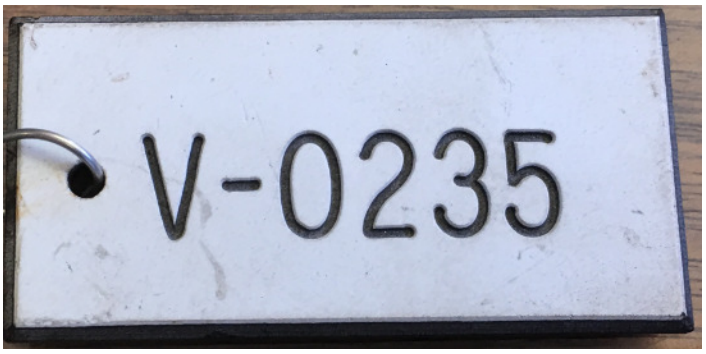
Clean Harbors Ohio is required to identify applicable equipment so that it is readily distinguishable from equipment that is not subject to the program. The component inventory allows for the tracking of found leaks on individual components by means of a unique identification (ID) number and provides equipment component count totals for each type of component. Each equipment component is assigned a unique ID number and the inventory provides the following information for each: Tag ID, Inspection Point Status, Hazardous Waste Management Unit, Area (ultimate parent), Subarea (parent), Equipment Name, Equipment Type, Number of Connectors, Location, Facility Drawing Reference, Facility Drawing Name, Waste Type, Organic Percentage By Weight, Unsafe-to-Monitor (UTM) Status, Reason UTM, Difficult-to-Monitor (DTM) Status, Reason DTM, In-Service Date, Removal Date, Inspection Schedule, Inspection Method.

UTM or Unsafe-to-Inspect (UTI) means the equipment cannot be monitored or inspected without exposeing personnel to an immediate danger.

DTM or Difficult-to-Inspect (DTI) means the equipment cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface, or the equipment is not safely accessible at any time.

A component's unique ID number is tracked by the placement of ID tags (Figure 1: Identification Tag), which are affixed to the applicable component with a wire or adhesive. These tags contain a unique tracking number that can easily be referenced to a hard copy print out of the inventory. Components that do not have tags are referenced with another digit related to a nearby tag. Tag numbers start out with the abbreviation for the equipment type (V-100, FL-100, PSV-100, OE-100). For example, V=valve, Fl=flange, PSV=pressure safety valve, OE=open ended line.

Figure 1
Identification Tag Sample



Clean Harbors Ohio maintains a log with unique ID tag numbers for valves, pumps, flanges, connectors that are potential open-ended lines or valves, PRDs, and instrumentation systems, each indicating the total number of connectors. There no compressors, surge control vessels or bottoms receivers currently at the Hebron Recycle Center. Equipment is also tracked and maintained on Process and Instrumentation Diagrams (P&IDs) maintained by the facility. The inventory is organized by LDAR process areas identified as "Hazardous Waste Management Units". These are split into "Areas" that contain a grouping of vessels, which are split into smaller "Subareas" that identify the individual vessels. Subareas are further identified by a description of each component's "Location," with a reference to the applicable P&ID page. This logic is known as "geography". The geography serves as the basis for a list of all equipment that has the potential to release fugitive emissions.

Subpart H, §63.181 (Recordkeeping) requires a list of the equipment to be maintained. Table 5 summarizes the LDAR Identification Requirements and provides a description of Clean Harbors Ohio's method of compliance. See **Exhibit 4: LDAR Inventory Log**, for more information.

Table 5
LDAR Identification Requirements

Subsection of 40 CFR Part 63, §63.181	Identification Requirement	Clean Harbors Ohio	Exhibit
(b)(1)(i)	List of identification numbers for equipment with total number of connectors indicated. Equipment includes Valves, Pumps, Agitators, Compressors, PRDs, Total count of connectors.	List of identification numbers are maintained with total number of connectors. Equipment includes Valves, Pumps, PRDs, Open-ended lines and Flanges. Note there are no compressors or agitators at the facility.	Exhibit 4, see column labeled Tag Number.
(b)(1)(ii)	Monitoring Schedule for Valves and Connectors subject	Monitoring schedule is provided generically by equipment type in	Exhibit 4, see column

Subsection of 40 CFR Part 63, §63.181	Identification Requirement	Clean Harbors Ohio	Exhibit
	to §63.174.	Section 6.2 of the plan as well as documented more specifically in the inventory log next to each component.	labeled Monitoring Schedule.
(b)(1)(iii)	Equipment identified on a site plan, log entries, or other method.	Identifies equipment in a log and references P&IDs that are maintained at the facility.	Exhibit 4 for Log.
(b)(2)(i)	List of identification numbers for equipment (Pumps, Compressors, Agitators, PRDs) that is equipped with a Closed-vent systems and control devices.	Identifies PRDs that are equipped with a closed vent system and control device. There are no pumps, compressors or agitators that are equipped with a closed vent system and control device.	Exhibit 4, see column Tag Number.
(b)(2)(ii)	List of identification numbers for compressors w/<500ppm above background.	No compressors on location.	Not applicable.
(b)(2)(iii)	Identification of surge control vessels or bottom receivers equipped with closed-vent system and control device.	No surge control vessels or bottom receivers on location.	Not applicable.
(b)(3)(i)	List of identification numbers for pressure relief devices (PRD).	PRDs are identified in the inventory log under equipment type of pressure relief device for either those equipped with a closed vent system or rupture disk with a tag number beginning with PRD-CVS, PRD-RD.	Exhibit 4, see column Tag Number.
(b)(3)(ii)	List of identification numbers for pressure relief devices equipped with a rupture disk.	PRDs with a rupture disk are identified in the inventory log under equipment type of pressure relief device rupture disk with tag number beginning with PRD-RD.	Exhibit 4, see column Tag Number.
(b)(4)	Identification of instrumentation systems, only the system not individual components.	Instrumentation systems are identified as a group of components with an equipment type Instrumentation System.	Exhibit 4, see column Equipment Type.
(b)(5)	Identification of screwed	Not using alternative monitoring	Not

Subsection of 40 CFR Part 63, §63.181	Identification Requirement	Clean Harbors Ohio	Exhibit
	connectors using alternative of being monitored once within 3 months of returning to service if installed prior to 1992.	for connectors.	applicable.
(b)(6)(i)-(ii)	Information logged for Dual Mechanical Seals system: Design criteria to indicate leak and explanation for pumps, compressors and agitators and changes.	Dual Mechanical Seal Pumps are not present at the Hebron Recycle Center.	Not applicable.
(b)(7)(i)	Identification of equipment for valves, pumps, agitators and connectors UTM, valves and agitators DTM, UTI and Plan.	There are no Unsafe-to-monitor or Unsafe-to-inspect equipment on location. Difficult-to-monitor equipment is identified in the inventory log and DTM plan.	Exhibit 4, see column "Difficult to Monitor"; Exhibit 5, DTM Plan; see Exhibit 6 for UTM and UTI Plan.
(b)(7)(ii)	List of Identification numbers for equipment that is designated as DTM and explanation why and planned schedule.	Difficult-to-Monitor plan identifies all equipment with a list of IDs including explanation and a planned schedule.	Exhibit 5, Difficult-to-Monitor Plan.
(b)(7)(iii)	List of identification numbers for connectors that are designated as UTR and explanation why.	There are no Unsafe-to-Monitor or Unsafe to Inspect equipment on location.	Exhibit 6, Unsafe-to-Monitor, Unsafe-to-Inspect and Unsafe-to-Repair.
(b)(8)(i)	List of valves removed from and added to process unit if the net credits for removed valves is expected to be used.	Equipment totals by process unit are maintained and as equipment is added or removed the Summary is updated to reflect the changes	Exhibit 7, Summary of Equipment Changes.
(b)(8)(ii)	A list of connectors removed from and added to the	Equipment totals by process unit are maintained and as equipment	Exhibit 7, Summary of

Subsection of 40 CFR Part 63, §63.181	Identification Requirement	Clean Harbors Ohio	Exhibit
	process unit and documentation of the integrity of the weld for any removed connectors. Not required unless the net credits for removed connectors is expected to be used.	is added or removed the Summary is updated to reflect the changes	Equipment Changes.

6.1.1 Loose, Fallen or Removed Tags

Facility employees are trained to collect and turn in all loose, fallen or removed tags to the LDAR Technicians, so they can be properly reattached. The LDAR Technicians are also instructed to identify and replace any lost or removed tags during routine monitoring rounds.

6.1.2 Management of Change

It is very important to maintain the integrity of the inventory, as this is the supporting documentation for providing evidence that monitoring has occurred in accordance with the regulatory requirements. As changes are made to equipment and piping, certain equipment may be added or removed from service. There are two kinds of changes: "like-in-kind" and "not-like-in-kind".

For all changes to equipment, process and material streams that are "not-like-in-kind," Exhibit 8 Process Change Request & Notice of Change form is completed to assess and document the change. A review of the change is conducted by a team of facility staff, that typically includes the Site Manager, Operations Manager and Maintenance Manager, in order to assess how compliance and safety may be affected by the change, including the LDAR program. The change is then shared with affected employees. If LDAR is affected, the LDAR Technician and Senior Facility Compliance Manager will assess the applicability. Once the change is complete, the LDAR Technician will update the inventory, perform the initial inspection, and provide the data to the Quality Analyst. The Quality Analyst will review the data, setup the routine monitoring schedule, and provide supporting documentation that each item has been addressed to be maintained with the Process Change Request & Notice of Change form. Subsequently, the Senior Facility Compliance Manager will update the Plan to reflect the changes, including Exhibits 1, 2, 3, 4, 5 and 6 and will update the Clean Harbors Ohio compliance database.

For all changes to equipment that are "like-in-kind" the Process Change Request & Notice of Change form is not utilized; however, the LDAR Technician must still be notified when equipment is replaced or modified to ensure a good seal and leak-free condition is maintained, and to ensure that replacement of any tags occurs to maintain the integrity of the inventory. Notification to the LDAR

Technician of "like-in-kind" changes is the responsibility of the Maintenance Manager and will be communicated on the Exhibit 9: LDAR Weekly Progress form. A weekly report will be provided to the LDAR Technician of all "like-in-kind" changes. The LDAR Technician will review the equipment replacement, update the Tag Number (if necessary), perform an initial inspection and provide the data to the Quality Analyst. The Quality Analyst will review the data and update the routine monitoring schedule and inventory (if necessary), and provide supporting documentation that each item has been addressed to be maintained with the LDAR Weekly Progress form. Subsequently, the Senior Facility Compliance Manager will update the Plan to reflect the changes (if necessary), including Exhibits 1, 2, 3, 4, 5 and 6 and will update the Clean Harbors Ohio compliance database.

6.1.3 Auditing the Inventory

The Management of Change (MOC) process is meant to capture all changes to the inventory; however, in order to verify that changes have not occurred (or to identify any undocumented changes), an audit of the inventory will be performed on a monthly basis. The LDAR Technician will take a physical copy of the inventory each month, prior to the end of the monthly monitoring period, and assess any changes made to the inventory not captured through MOC. The LDAR Technician will submit all changes to the Quality Analyst, completing any necessary LDAR Weekly Progress forms, where it will be noted that the items were not reported through the MOC process. The Quality Analyst will review the data and update the routine monitoring schedule and inventory (if necessary), and provide supporting documentation that each item has been addressed to be maintained with the LDAR Weekly Progress form. Subsequently, the Senior Facility Compliance Manager will update the Plan to reflect the changes (if necessary), including Exhibits 1, 2, 3, 4, 5 and 6 and will update the Clean Harbors Ohio compliance database. The Senior Facility Compliance Manager will hold a supplemental training session with the Maintenance Manager and any other necessary parties on the MOC process.

6.2 LDAR Monitoring Schedule

In accordance with Subpart H §63.163-§63.180, all equipment, with the exception of exempted devices listed in Tables 2 and 3 are required to be inspected in accordance with the following procedures.

1. Visual Inspection: Inspection to identify visible leakage from equipment including dripping, spraying, misting, clouding, and/or ice formation. Indications of liquid dripping include puddling, or new stains that may indicate the presence of an existing evaporated drip.
    a. Compressors shall be visually inspected at least once per day for leaks;
    b. Pumps and Agitators shall be visually inspected at least once per week for leaks; and
    c. Open-ended lines and valves shall be visually inspected daily to be capped, plugged, blind flanged or maintained with two closed valves.

2. Audio, Visual, Olfactory Inspection: Inspection to identify visible leakage, audible leakage, or any smell that is indicative of leakage.

a. **Closed Vent Systems with hard piping** shall be inspected at least once annually by audio, visual, olfactory means.

3. EPA Method 21
   a. **Pumps and Agitators** must be inspected monthly;
   b. **Valves** shall initially be inspected monthly and may move to a quarterly inspection schedule if there are less than 2% leaking valves in that process unit. See Table 6 for other frequencies and reference the applicable regulation to calculate leak percentages.
   c. **Connectors, Closed Vent Systems with Duct Work, Difficult-to-monitor Valves and Agitators, Unsafe-to-monitor Pumps, Valves, Agitators & Connectors, Unsafe-to-Inspect Closed Vent Systems with hard piping** are required to be inspected annually. Closed vent systems with duct work and hard piping need to be inspected via Method 21 initially.
   d. **Difficult-to-inspect Closed Vent Systems with hard piping** are required to be inspected once every five years via Method 21.

Table 6 summarizes the inspection frequency and methodology for the facility. These are the minimum requirements set forth by the regulation; however, Clean Harbors Ohio may elect to perform inspections more frequently.

Table 6
Facility Inspection Frequency and Methodology

Component Type	Material Stream	Inspection Frequency	Method Inspected
Established Accessible Equipment			
Pumps	Light Liquid	Weekly	Visual
		Monthly	Method 21
Compressors (Not applicable)	Gas/Vapor	Daily	Visual
PRD-A	Gas/Vapor	Within 5 days of Release	Method 21
PRD-RD			Replace Rupture Disk
OEL/V	All	At all times, except during sampling	Visual
Valves: 2% or greater leaking valves in a process unit	Gas/Vapor/Light Liquid	Monthly	Method 21
Valves : Less than 2% leaking valves in a		Quarterly	

Component Type	Material Stream	Inspection Frequency	Method Inspected
process unit			
Valves : Less than 1% leaking valves in a process unit		Every 2 Quarters	
Valves : Less than 0.5% leaking valves in a process unit		Every 4 Quarters	
Pumps, Valves, Connectors, Agitators	Heavy Liquid (Not Applicable)	Within 5 days of evidence of leak found by audio, visual, olfactory	Method 21
Instrumentation Systems	All		
Pressure Relief Devices	Light/Heavy Liquid		
Closed Vent System and Control Devices	Hard Piping	Initial	Method 21
		Annual	Visible, Audible, or Olfactory
	Duct Work	Initial	Method 21
		Annual	
Agitators (Not applicable)	Gas/Vapor/Light Liquid	Weekly	Visual
		Monthly	Method 21
Connectors: 0.5% or greater leaking connectors in a process unit	Gas/Vapor/Light Liquid	Annual	Method 21
Connectors: less than 0.5% leaking connectors in a process unit		Every 2 Years	
Connectors: less than 0.5% leaking connectors in a process unit from the 2-year cycle		Every 4 Years	
Connectors: greater than or equal to 0.5% but less than 1% leaking connectors in a process unit from the 4-year cycle		Every 2 Years	
Connectors: greater	Gas/Vapor/Light	Annual	Method 21

Component Type	Material Stream	Inspection Frequency	Method Inspected
than or equal to 1% leaking connectors in a process unit from the 4-year cycle	Liquid		
Established Difficult-to-Monitor Equipment			
Valves & Agitators	Gas/Vapor/Light Liquid	Annually	Method 21
Established Unsafe-to-Monitor Equipment			
Pumps, Valves, Agitators & Connectors	Gas/Vapor/Light Liquid	Annually	Method 21
New, Replaced, Modified and Repaired Equipment			
New Equipment	All	Upon Initial Service	Method 21
Replaced Equipment	All	After Completed Replacement	Method 21
Connectors that have been opened and/or had the seal broken	All	Reconnect or within the first 3-months having returned to organic HAP service	Method 21
Repaired Equipment	All	After Completed Repair	Method 21

6.3 U.S. EPA Method 21 Requirements

6.3.1 Instrumentation

The LDAR Technician will conduct inspections using the Thermo TVA model 1000B or model 2020 flame ionization detector, or another U.S. EPA Method 21-approved portable instrument. TVA instrument specifications are summarized in Table 7.

Table 7
Instrument Specifications

Specification	Thermo TVA 1000B	Thermo TVA 2020
Sensor Type	Flame Ionization	Flame Ionization
Readout	1 to 50,000 ppm	1 to 30,000 ppm
Response Time	< 5 seconds to achieve 90%	<3.5 seconds for 90%
Sampling Method	Integral Pump	Integral Pump

Sample Flow Rate	1.0 liters per minute	1.0 liters per minute
Intrinsically Safe	Yes	Yes

6.3.2 Calibration and Maintenance

Instruments are calibrated daily, per manufacturer's specification, to the regulatory leak definitions and documented on Exhibit 10: U.S. EPA Method 21 Calibration Form. However, Clean Harbors Ohio has taken a conservative leak threshold of 500 ppm for all leak thresholds; therefore, the facility is only calibrating to zero part per million (ppm) gas (air) and 500 ppm methane. The LDAR Technician is calibrating the instruments in accordance with manufacturer's recommended procedures.

Exhibit 11: Maintenance Procedure is utilized for an instrument on a daily basis, prior to calibrating or using the instrument, to evaluate pump adequacy, correct operation of electronics, and inspect particle filters. Calibrations are then performed with same the filters and probe in-place that will be utilized during the inspection on that day, including any extensions/attachments. Should the calibration result not match the reference gas, the LDAR Technician will re-calibrate the instrument until it passes calibration or will send the instrument in for maintenance.

6.3.3 Calibration-Precision Test and Response-Time Test

Calibration-precision and response-time tests are conducted prior to placing an analyzer instrument into service (initially or after repair), and at subsequent 3-month intervals or at the next use, whichever is later. If a modification is made to the sample pumping system or flow configuration that would change the response-time, a new response-time test is required before further use. Exhibit 12: U.S. EPA Method 21 Calibration-Precision and Response-Time Test Form will be used to document the results of any such tests. The calibration-precision and response-time testing procedure is summarized as follows:

Two known concentrations of gas, 500 ppm Methane along with zero (air) gas, are measured three times each, and alternating between the zero (air) gas and the 500ppm gas. The instrument readings are recorded for each measurement. The average algebraic difference of the actual concentration of methane (known gas cylinder concentration) versus the instrument reading is calculated; divide this average difference by the known calibration value and multiply by 100 to express the resulting calibration-precision as a percentage. Should the average difference be less than or equal to 10%, the test passes and a calibration-precision record form is completed and signed by the LDAR Technician. If the average difference is greater than 10%, the instrument must be re-calibrated according to the manufacturer's guidelines and the calibration-precision test is repeated as necessary until the instrument is within the 10% range.

Simultaneously, while the instrument is calibration-precision tested, the LDAR Technician will also complete the response-time test. This test begins by introducing zero (air) gas into the instrument sample probe. When the meter reading has stabilized, quickly switch to the specified calibration gas

(methane). After switching, measure the time required to attain 90 percent of the final stable reading. Perform this test sequence three times and record the results. Calculate the average response-time. The instrument response-time shall be less than or equal to 30 seconds. The instrument pump, dilution probe (if any), sample probe, and probe filter that will be used during testing on that day shall all be in place during the response-time determination.

6.3.4 Inspection Methodology

Inspections of components will be conducted pursuant to the requirements of U.S. EPA Method 21, Type I, utilizing an instrument which meets the requirements of Method 21. The calibration reference compound for all such instruments will be methane. When conducting inspections using an approved instrument, the probe inlet is placed at the surface of the component interface, where leakage could occur, and moved along the interface periphery while observing the instrument readout. If the source is a rotating shaft, the probe inlet must be positioned within one centimeter of the shaft-seal interface. Soap-bubble screening will be utilized as an alternative screening method where appropriate. This inspection protocol will also be followed after the repair of leaking components to verify the efficacy of the repair.

Type I Leak Definition Based on Concentration will be utilized for inspections. The LDAR Technician will place the probe inlet at the surface of the component interface where leakage could occur, and begin moving the probe along the interface periphery while observing the instrument readout. If an increased meter reading is observed, the LDAR Technician will slowly sample the interface where leakage is indicated until the maximum meter reading is obtained. The probe inlet must remain at this maximum reading location for approximately two-times the instrument response-time. If the maximum observed meter reading is greater than the leak definition in the applicable regulation (or a lower value if the facility chooses), the LDAR Technician will record and report the results as specified in the regulation reporting requirements.

6.3.5 Leak Threshold

The LDAR Technician will identify all equipment with calibrated instrument readings, collected using the correct methodology, that are greater than the leak threshold and any such equipment will be documented as "leaking". Table 8 reflects the Leak Thresholds for Subpart H; however, Clean Harbors Ohio has implemented a more stringent leak threshold of 500 ppm for all equipment, except agitators for which it uses a 10,000 ppm leak threshold.

Table 8
Leak Thresholds

Component Type	Stream	Regulatory Leak Threshold	Clean Harbors Leak Threshold
Pumps	Liquid	1,000 ppm Leak, 2,000 ppm requires	500 ppm

Component Type	Stream	Regulatory Leak Threshold	Clean Harbors Leak Threshold
		repair	
Compressors (Not applicable)	Gas/Vapor	500 ppm	Not Applicable
PRDs	All	500 ppm	500 ppm
Valves	All	500 ppm	500 ppm
Instrumentation Systems	All	500 ppm	500 ppm
Closed Vent System and Control Devices	All	500 ppm	500 ppm
Agitators	All	10,000 ppm	10,000 ppm
Connectors	All	500 ppm	500 ppm

6.3.6 Inspection Documentation

Inspections are documented on **Exhibit 13: U.S. EPA Method 21 Inspection Log**. The tag number, equipment type/name, area, subarea, date of inspection, instrument used, technician, test type (Visual, AVO or Method 21), background reading or if visual/AVO test indicate leaking or not leaking, and maximum instrument reading, as applicable, are documented for all equipment inspections. If a leak is found then, in addition to the above listed information, the date the leak was detected will also be documented.

6.4 Repairs

Clean Harbors Ohio LDAR Technician will perform a first attempt at repair if it is within their expertise. The first attempt at repair will be documented on the Inspection Log. The LDAR Technician will subsequently perform EPA Method 21 to re-inspect the equipment for leaks, to determine if the first attempt at repair is successful. If the reading is below the leak threshold the leak repair is successful. The LDAR Technician will document the technician information, date of repair, repair action, instrument used and final reading on the Inspection Log.

If the first attempt at repair is unsuccessful or the LDAR Technician is unable to perform a first attempt at repair, the LDAR Technician will hang a weatherproof visible leak tag on the leaking equipment (**Exhibit 14: Leak Tag**), documenting the date, equipment identification number and equipment tag number. The LDAR Technician will subsequently report the leaking equipment to facility maintenance, as documented on **Exhibit 15: Leak Tracking Log** that will include the tag number, equipment type/name, area, subarea, date of inspection, instrument used, technician information, test type (Visual, AVO or Method 21), background reading or if visual/AVO test indicate leaking or not leaking, and maximum instrument reading, as applicable. The Maintenance Manager will dispatch a

technician to perform an initial attempt at repair within 5 days, and a final repair within 15 days, of the leak being detected. The Maintenance Manager will ensure that all repair attempts are documented with the date, time, repair technician information and repair action description on the Leak Tracking Log. The Leak Tracking Log will be re-submitted to the LDAR Technician for re-inspection of the repaired leak. If the Maintenance Manager determines the leak cannot be repaired within 15 days without a process unit shutdown the equipment will be put on Delay-of-repair.

6.5 Delay of Repair

Equipment on Delay-of-repair are equipment that are technically infeasible to repair without a process unit shutdown. Repair of this equipment shall occur by the end of the next process unit shutdown. The Delay-of-repair equipment must be isolated from the process and may not remain in organic HAP service. Clean Harbors Ohio does not expect to use Delay-of-repair; however, should the designation be needed, the **Exhibit 16: Delay of Repair form** will be used, documenting the reason for the delay (choosing from the provided list), and signed by the Maintenance Manager to officially approve the Delay-of-repair.

Delay-of-repair for valves, connectors, and agitators is also allowed if it is determined that potential emissions of purged material resulting from immediate repair would be greater than the fugitive emissions likely to result from Delay-of-repair. When repair procedures are ultimately undertaken, the purged material must be collected and destroyed, or recovered in a control device complying Subpart H.

Delay-of-repair for pumps is also allowed if the repair requires replacing the existing seal design with a new system that Clean Harbors Ohio has determined will provide better performance, or that is:

- A dual mechanical seal system that meets the requirements Subpart H; or
- A pump that is designed with no externally actuated shaft penetrating the pump housing and that meets the requirements of Subpart H; or
- A closed-vent system and control device that meets the requirements of Subpart H.

Additionally, the pump repair must be completed as soon as practicable, but not later than 6 months after the leak was detected.

Delay-of-repair beyond a process unit shutdown will be allowed for a valve if all of the following are true:

- Valve assembly replacement is necessary during the process unit shutdown; and
- Valve assembly supplies have been depleted; and
- Valve assembly supplies had been sufficiently stocked before the supplies were depleted.

Delay-of-repair for valves beyond the second process unit shutdown will not be allowed unless the third process unit shutdown occurs sooner than 6 months after the first process unit shutdown.

6.6 Connector Repairs and Maintenance Tracking

In the weekly report, the Maintenance Manager will prepare a list by location (area or grouping), of connectors that have been opened or otherwise had the seal broken that week. The LDAR Technician will inspect each connector in accordance with Method 21 and will document results accordingly.

6.7 Re-inspection

The LDAR Technician will perform Method 21 inspections on all repaired leaks and will document the technician information, date of re-inspection, instrument used, and instrument reading. If the leak remains greater than the leak threshold the LDAR Technician will update the Leak Tracking Log. The process will continue until the leak is below the leak threshold or the equipment is taken out-of-service. If at any time the equipment returns to service, the repair and re-inspection documentation must be recorded to close-out the leak. Once the leak is repaired and confirmed below the leak threshold the leak tag may be removed.

For valves, when a leak has been repaired, the valve shall be inspected/monitored at least once within the first 3 months after its repair.

7.0 Quality Assurance

Clean Harbors Ohio has elected to utilize a Quality Analyst or other assigned official to collect and review all documentation related to the LDAR Program, which will be documented in **Exhibit 17: QA/QC Standards**. The LDAR Technician and Maintenance Manager will submit all documentation to the Quality Analyst on a daily basis. The Quality Analyst will compile the data and will review all records for completeness, accuracy and compliance. During weekly progress updates and monthly meetings, the Quality Analyst will communicate any deficiencies discovered during their review to the LDAR Team, which includes the LDAR Technician(s), Maintenance Manager and Senior Facility Compliance Manager. The Quality Analyst will manage the inventory updates that occur, prepare inspection schedules, inspection logs, track progress, review all documentation, track leaks, track repairs, track re-inspections, maintain recordkeeping and reports, ensure training occurs and the LDAR Monitoring Plan is implemented as documented.

8.0 Record Keeping Requirements

Table 9 summarizes records to be maintained and made available upon request. **Exhibit 18: LDAR Recordkeeping** will be utilized to organize the monthly recordkeeping. Clean Harbors Ohio shall maintain records for at least five years. Identification requirements are listed in Section 2.0, but they are also required for recordkeeping purposes.

Table 9
Record Keeping Requirements

Subsection of 40 CFR Part 63, §63.181	Recordkeeping Requirement	Clean Harbors Ohio Method
(b)(10)	For any leaks, weatherproof and readily visible identification, marked with equipment Identification number shall be attached to the leaking equipment.	See Sample Tag in Plan
(c)	Visual inspections on weekly pumps, shall document inspection was conducted and the date of the inspection. Retain for 2 years.	See Inspection Log
(d)(1)	For each leak pump, compressor, valve, HL equipment, instrumentation systems, PRD in liquid, CVS & CD, agitators, connectors, document instrument and equipment identification number and operator name, initials or id number.	See Process Leak Tracking and Retest form
(d)(2)	The date the leak was detected and the date of first attempt to repair leak.	See Process Leak Tracking and Retest form
(d)(3)	The date of successful repair.	See Process Leak Tracking and Retest form
(d)(4)	Maximum instrument reading measured by Method 21 after it is successfully repaired or determined nonrepairable.	See Process Leak Tracking and Retest form
(d)(5)	"Repair delayed" and reason for delay if not repaired within 15 days of discovery of leak.	See Process Leak Tracking and Retest form
(d)(5)(i)	Owner may develop written procedure that identifies conditions that justify delay of repair. May include as part of the startup/shutdown/malfunction plan for the source. Site relevant sections for reason for delay.	See Plan for reasons for DOR
(d)(5)(ii)	If delay of repair was caused by depletion of stocked parts, there must be documentation that the spare parts were sufficiently stocked on site before depletion and the reason for depletion.	See DOR form
(d)(6)	Dates of process unit shutdowns that occur while the equipment is unrepaired.	See Semi-Annual Report
(d)(7)(i)	Identification by list or location grouping or tagging connectors that have been opened or other side has the seal broken since the last monitoring period.	See Weekly progress reports
(d)(7)(ii)	The date and results of monitoring for opened or seal broken connectors. All connectors monitored in location if grouped by location.	See Inspection Logs

Subsection of 40 CFR Part 63, §63.181	Recordkeeping Requirement	Clean Harbors Ohio Method
(d)(8)	Date and results of monitoring if using alternatives for batch processing.	Not Applicable
(d)(9)	Copies of periodic reports.	See Semi-Annual Report
(e)	Batch process record keeping.	Not Applicable
(f)	Compressor record keeping.	Not Applicable
(g)	Maintain record of information for CVS and CD.	See Permit
(g)(1)(i)	Design schematics, specification of CD and P&IDs.	See Permit
(g)(1)(ii)	Dates and descriptions of any changes in the design specifications.	See Permit
(g)(1)(iii)	Flare design and results of compliance demonstration.	See Permit
(g)(1)(iv)	Description of parameter or parameters monitored to ensure CD are operated and maintained in conformance with their design and explanation of why that parameter was selected for monitoring.	See Permit
(g)(2)	Records of operation of CVS and CD.	See Semi-Annual Report
(g)(2)(i)	Dates and durations when the CVS and CD are not operated as designed by monitoring parameters, including periods when a flare pilot light system does not have a flame.	See Semi-Annual Report
(g)(2)(ii)	Dates and durations during which the monitoring system or monitoring device is inoperative.	See Semi-Annual Report
(g)(2)(iii)	Dates and duration of start-ups and shutdowns of control devices.	See Semi-Annual Report
(g)(3)	Record of inspections of CVS.	See Inspection Log
(g)(3)(i)	If no leaks detected, record that inspection was performed, the date of inspection and statement that no leaks were detected	See Inspection Log
(g)(3)(ii)	For each leak, see section (d).	See Inspection Log
(h)	Quality improvement plan recordkeeping.	Not Applicable
(i)	Heavy Liquid equipment recordkeeping.	Not Applicable
(j)	Identification by list or location grouping or tagging connectors that have been opened or otherwise has the seal	See Weekly progress reports

Subsection of 40 CFR Part 63, §63.181	Recordkeeping Requirement	Clean Harbors Ohio Method
	broken since the last monitoring period.	
(k)	Recordkeeping for alternatives for process vents.	Not Applicable

9.0 Reporting Requirements

Table 10 summarizes the information that must be contained in the reports that are required to be submitted to EPA Semi-Annually. Exhibit 19: Semi-Annual Report is a sample report template.

Table 10
Reporting Requirements

Regulation	Reporting
40 CFR Part 63, §63.182(d)(2)(i)	Number of valves leaking; percent leaking valves; total valves monitored.
40 CFR Part 63, §63.182(d)(2)(ii)	Number of leaking valves not repaired; number leaking valves determined non-repairable.
40 CFR Part 63, §63.182(d)(2)(iii)	Number pumps leaking; percent leaking pumps; total pumps monitored.
40 CFR Part 63, §63.182(d)(2)(iv)	Number of leaking pumps not repaired.
40 CFR Part 63, §63.182(d)(2)(v)	Number of compressors leaking.
40 CFR Part 63, §63.182(d)(2)(vi)	Number of leaking compressors not repaired.
40 CFR Part 63, §63.182(d)(2)(vii)	Number of leaking agitators.
40 CFR Part 63, §63.182(d)(2)(viii)	Number of leaking agitators not repaired.
40 CFR Part 63, §63.182(d)(2)(ix)	Number of leaking connectors; percent leaking connectors; total connectors monitored.
40 CFR Part 63, §63.182(d)(2)(xi)	Number leaking connectors not repaired; number leaking connectors determined non-repairable.
40 CFR Part 63, §63.182(d)(2)(xiii)	Facts explaining Delay-of-repair and why process unit shutdown not feasible.
40 CFR Part 63, §63.182(d)(2)(xiv)	Compressor monitoring results showing <500ppm above background.

Regulation	Reporting
40 CFR Part 63, §63.182(d)(2)(xiv)	Pressure relief device monitoring results showing <500ppm above background.
40 CFR Part 63, §63.182(d)(2)(xiv)	Results of initial inspections of closed-vent systems w/hard-piping.
40 CFR Part 63, §63.182(d)(2)(xiv)	Results of annual visual inspections of closed vent systems w/hard-piping.
40 CFR Part 63, §63.182(d)(2)(xiv)	Results of initial inspections of closed-vent systems w/duct-work.
40 CFR Part 63, §63.182(d)(2)(xiv)	Results of annual inspections of closed-vent systems w/duct-work.
40 CFR Part 63, §63.182(d)(2)(xv)	Whether a monthly monitoring program for process units with >2% leaking valves was initiated (if applicable).
40 CFR Part 63, §63.182(d)(2)(xv)	Whether a QIP for valves was initiated (if applicable).
40 CFR Part 63, §63.182(d)(2)(xv)	Whether a QIP for pumps was initiated (if applicable).
40 CFR Part 63, §63.182(d)(2)(xvi)	Notification of a change in connector monitoring alternatives (if applicable).
40 CFR Part 63, §63.182(d)(2)(xvii)	Statement of compliance option taken (40 CFR Part 63, Subpart H or 40 CFR Part 264, Subpart BB).
40 CFR Part 63, §63.182(d)(3)(i)	Identification of batch process equipment train (if applicable).
40 CFR Part 63, §63.182(d)(3)(ii)	Number of pressure tests conducted (if applicable).
40 CFR Part 63, §63.182(d)(3)(iii)	Number of failed pressure tests (if applicable).
40 CFR Part 63, §63.182(d)(3)(iv)	Explanation of any Delay-of-repair (if applicable).
40 CFR Part 63, §63.182(d)(3)(v)	Monitoring results to determine compliance with closed-vent inspection requirements (if applicable).
40 CFR Part 63, §63.182(d)(4)	Information about process units with later compliance dates (Notification of Compliance Status); information about process units with revisions to items reported in earlier Notification of Compliance Status (if changed).

Exhibit 1

LDAR Applicability

LDAR Applicability

Applicable Regulation	Monitoring	Process unit	Area	Subarea	Type of Stream	Current Product
DD	H	Non-Hazardous Waste Storage	Tank Farm 1	30	Waste	Air Stripper
DD	H	Non-Hazardous Waste Storage	Tank Farm 1	31	Waste	Water
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	32	Waste	Centria Crude
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	33	Waste	Acetone Crude
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	34	Waste	Thinner Crude
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	35	Waste	Acetone Crude
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	36	Waste	IPA Drums
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	37	Waste	Acetone Product
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	39	Waste	Acetone Crude
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	40	Waste	High H2O Fuels
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	41	Waste	Thinner Ohs
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	42	Waste	Touene Drums
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	43	Waste	IPA Drums
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	44	Waste	DMAPA For SC
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	45	Waste	Tolling Toluene For Toppan
DD	H	Non-Hazardous Waste Storage	Tank Farm 1	48A	In-Process Waste	Out of Service
DD	H	Non-Hazardous Waste Storage	Tank Farm 1	48B	In-Process Waste	Out of Service
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	49	Final Product/Waste	Xylene Crude
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	50	Final Product/Waste	IPA Dums
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	51	Final Product/Waste	Stripped Toluene
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	52	Final Product/Waste	Acetone Ohs
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	53	Final Product/Waste	Acetone Ohs
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	56	Final Product/Waste	Thinner Ohs
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	57	Final Product/Waste	Thinner Ohs
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	58	Final Product/Waste	Kaiser MS Tolling
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	59	Final Product/Waste	Acetone Ohs
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	60	Final Product/Waste	MEK Ohs
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	61	Final Product/Waste	Toluene Ohs
BB, DD	Exempt	Hazardous Waste Storage	Tank Farm 1	63	Waste	H2O
DD	H	Non-Hazardous Waste Storage	Tank Farm 1	64	In-Process Waste	Empty
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	65	Final Product/Waste	IPA Crude
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	66	Final Product/Waste	IPA Wet
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	67	Waste	Fuels for Blending
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	68	Final Product/Waste	Empty
BB, DD	H	Hazardous Waste Storage	Tank Farm 1	69	Final Product/Waste	Ethanol Crude
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	80	In-Process/Waste	Empty
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	81	In-Process/Waste	Fuels from 98
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	82	In-Process/Waste	Jacuzzi
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	83A	In-Process/Waste	Mecl2 Enriched
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	83B	In-Process/Waste	Jacuzzi
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	84A	In-Process/Waste	Jacuzzi
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	84B	In-Process/Waste	Lean H20
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	85	In-Process/Waste	NMP Ohs
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	86	In-Process/Waste	Lean H20
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	87	In-Process/Waste	H2O from Vac Truck
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	88	In-Process/Waste	MecL2 from Intel
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	89A	In-Process/Waste	Kaiser Crude
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	89B	In-Process/Waste	Lean H20
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	90	In-Process/Waste	Perc / Xylene Drums
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	91	In-Process/Waste	Stripped perc
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	92A	In-Process/Waste	H20 from vac truck
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	92B	In-Process/Waste	Empty (Line Leak)
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	93	In-Process/Waste	Glycol Exelon Medway
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	94A	In-Process/Waste	NMP / Glycol
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	94B	In-Process/Waste	Lean H20
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	95	In-Process/Waste	Intel H20 needs acid
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	100	In-Process/Waste	Washed Intel H20
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	101	In-Process/Waste	Solvent / H20 from 89B
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	102A	Waste/Waste Water	Empty
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	102B	Waste/Waste Water	Mecl2 Thermo Btms
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	103	In-Process/Waste	Intel Ohs
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	104	In-Process/Waste	Intel H20 with acid
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	105	In-Process/Waste	Perc from 106
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	106	In-Process/Waste	Perc Cooker Ohs
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	107	In-Process/Waste	H20 to 63
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	108	In-Process/Waste	Mecl2 H20
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	109	In-Process/Waste	Stepan Methanol
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	110	In-Process/Waste	NMP Ohs
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	111	In-Process/Waste	Perc from Intel wash
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	112	In-Process/Waste	Clean High Chlor Fuel
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	113	In-Process/Waste	Perc Production

LDAR Applicability

Applicable Regulation	Monitoring	Process unit	Area	Subarea	Type of Stream	Current Product
BB, DD	H	Hazardous Waste Storage	Tank Farm 2	114	In-Process/Waste	Glycol Exelon Medway
DD	H	Non Hazardous Waste Storage	Tank Farm 3	125		Intel Ohs
DD	H	Non Hazardous Waste Storage	Tank Farm 3	126		Intel Ohs
DD	H	Non Hazardous Waste Storage	Tank Farm 3	127	In-Process/Waste	Glycol Exelon Medway
DD	H	Non Hazardous Waste Storage	Tank Farm 3	130		Propylene glycol
DD	H	Non Hazardous Waste Storage	Tank Farm 3	131	Final Product	Ind Perc Product
DD	H	Non Hazardous Waste Storage	Tank Farm 3	132	Final Product	Ind Perc Product
DD	H	Non Hazardous Waste Storage	Tank Farm 3	135		Ethylene Glycol
DD	Exempt	Non Hazardous Waste Storage	Tank Farm 3	136	Water	H20
DD	H	Non Hazardous Waste Storage	Tank Farm 3	137	Final Product	Ind Perc Product
DD	H	Non Hazardous Waste Storage	Tank Farm 3	140		Washed Intel H20
DD	H	Non Hazardous Waste Storage	Tank Farm 3	141		H20 from 106
DD	Exempt	Non Hazardous Waste Storage	Tank Farm 3	142	Water	Aeration tank water
DD	Exempt	Non Hazardous Waste Storage	Tank Farm 3	145	Water	Aeration tank water
DD	H	Non Hazardous Waste Storage	Tank Farm 3	146		H20 from 106
DD	H	Non Hazardous Waste Storage	Tank Farm 3	147		Intel Ohs
BB, DD	H	Hazardous Waste Storage	Tank Farm 4	203	Waste	Fuel / H20
BB, DD	H	Hazardous Waste Storage	Tank Farm 4	204	Waste	Intel H20
BB, DD	H	Hazardous Waste Storage	Tank Farm 4	205	Waste	Intel H20
DD	H	Non-Hazardous Waste Storage	Tank Farm 4	208	Waste	Empty
BB, DD	H	Hazardous Waste Storage	Tank Farm 4	209	Waste	Intel H20
BB, DD	H	Hazardous Waste Storage	Tank Farm 6	98	In-Process/Waste	Fuels for Blending
BB, DD	H	Hazardous Waste Storage	Distillaiton Area	Bin 1	Waste	Various
BB, DD	H	Hazardous Waste Storage	Distillation Area	Bin 2	Waste	Various
DD	Exempt	Waste Water Treatment	All Areas	All Equipment	Water	Water
DD	H	Dryer 1	Dryer 1	All Equipment	In-Process Waste	Various
DD	H	Dryer 2	Dryer 2	All Equipment	In-Process Waste	Various
DD	H	Dryer 3	Dryer 3	All Equipment	In-Process Waste	Various
DD	H	Dryer 4	Dryer 4	All Equipment	In-Process Waste	Various
DD	H	Distillation Column	Still Room	All Equipment	In-Process Waste	Various
DD	H	Distillation Column	Distillation Area	All Equipment	In-Process Waste	Various
DD	H	LUWA (future)	LUWA	All Equipment	In-Process Waste	Various
BB, DD	H	Transfer Pipelines	Overhead Piping	All Equipment	In-Process Waste	Various
BB, DD	H	Transfer Pipelines	Truck Station 1	All Equipment	In-Process Waste	Various
BB, DD	H	Transfer Pipelines	Truck Station 2	All Equipment	In-Process Waste	Various
BB, DD	H	Transfer Pipelines	Truck Station 4	All Equipment	In-Process Waste	Various
BB, DD	H	Transfer Pipelines	Truck Station 6	All Equipment	In-Process Waste	Various
DD	H	Dehydration Unit (out of service	Dehydrator	All Equipment	In-Process Waste	Various
BB, DD	H	Pumps	All Areas	All Equipment	In-Process Waste	Various

Exhibit 2

LDAR Exemptions

LDAR Exemptions

LDAR exempt equipment are documented here in this plan referencing the regulatory requirement and the inventory. The inventory will be updated routinely as changed.

General

63.162(d)Equipment that is in vacuum service is excluded from the requirements of this subpart. Vacuum service is defined as operating at an internal pressure which is at least 5 kilopascals below ambient pressure. This translates to a vacuum of approximately 21 inches of water and above is considered in vacuum service and therefore is exempt from monitoring.

Clean Harbors Ohio operates equipment in vacuum service at approximately 27 inches of water. At this time, there is no equipment that is exclusively in vacuum service, meaning there are times throughout the monitoring period where the equipment is not in vacuum service and monitoring would be allowed. If at all times during the monitoring period the equipment is operated in vacuum service (exceeding 21 inches of water) then to claim this exemption Clean Harbors Ohio will provide vacuum service log records for equipment not able to perform monitoring due to being in vacuum service during the entire monitoring cycle.

63.162(e)Equipment that is in organic HAP service less than 300 hours per calendar year is excluded from the requirements of §§ 63.163 through 63.174 of this subpart and § 63.178 of this subpart if it is identified as required in § 63.181(j) of this subpart.

Clean Harbors Ohio does not have any equipment that operates less than 300 hours at this time.

Pumps

63.163(e) Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraphs (a) through (d) of this section, provided the following requirements are met:

Clean Harbors Ohio has not identified any dual mechanical seal equipped pumps on location.

(1) Each dual mechanical seal system is:

(i) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or

(ii) Equipped with a barrier fluid degassing reservoir that is routed to a process or fuel gas system or connected by a closed-vent system to a control device that complies with the requirements of § 63.172 of this subpart; or

(iii) Equipped with a closed-loop system that purges the barrier fluid into a process stream.

(2) The barrier fluid is not in light liquid service.

(3) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

63.163(f) Any pump that is designed with no externally actuated shaft penetrating the pump housing is exempt from the requirements of paragraphs (a) through (c) of this section.

Clean Harbors Ohio has not identified any pumps without an externally actuated shaft penetrating the housing.

LDAR Exemptions

63.163(g) Any pump equipped with a closed-vent system capable of capturing and transporting any leakage from the seal or seals to a process or to a fuel gas system or to a control device that complies with the requirements of § 63.172 of this subpart is exempt from the requirements of paragraphs (b) through (e) of this section.

Clean Harbors Ohio has not identified any pumps with a closed vent system.

63.163(h) Any pump that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirement of paragraphs (b)(3) and (e)(4) of this section, and the daily requirements of paragraph (e)(5) of this section, provided that each pump is visually inspected as often as practicable and at least monthly.

Clean Harbors Ohio has not identified any pumps at unmanned locations.

63.163(i) If more than 90 percent of the pumps at a process unit meet the criteria in either paragraph (e) or (f) of this section, the process unit is exempt from the requirements of paragraph (d) of this section.

Clean Harbors Ohio has not identified any pumps as dual mechanical seal or pumps without an external actuating shaft on location.

63.163(j) Any pump that is designated, as described in § 63.181(b)(7)(i) of this subpart, as an unsafe-to-monitor pump is exempt from the requirements of paragraphs (b) through (e) of this section if:

(1) The owner or operator of the pump determines that the pump is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraphs (b) through (d) of this section; and

Clean Harbors Ohio has not identified any unsafe-to-monitor pumps at this time. See Exhibit 6.

(2) The owner or operator of the pump has a written plan that requires monitoring of the pump as frequently as practical during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable.

Clean Harbors Ohio has not identified any unsafe-to-monitor pumps at this time. See Exhibit 6.

<u>Compressors</u>

63.164(h) A compressor is exempt from the requirements of paragraphs (a) through (g) of this section if it is equipped with a closed-vent system to capture and transport leakage from the compressor drive shaft seal back to a process or a fuel gas system or to a control device that complies with the requirements of § 63.172 of this subpart.

(i) Any compressor that is designated, as described in § 63.181(b)(2)(ii) of this subpart, to operate with an instrument reading of less than 500 parts per million above background, is exempt from the requirements of paragraphs (a) through (h) of this section if the compressor:

(1) Is demonstrated to be operating with an instrument reading of less than 500 parts per million above background, as measured by the method specified in § 63.180(c) of this subpart; and

LDAR Exemptions

(2) Is tested for compliance with paragraph (i)(1) of this section initially upon designation, annually, and at other times requested by the Administrator.

Clean Harbors Ohio has not identified any compressors with a closed vent system on location.

Pressure Relief Device

63.165(c) Any pressure relief device that is routed to a process or fuel gas system or equipped with a closed-vent system capable of capturing and transporting leakage from the pressure relief device to a control device as described in § 63.172 of this subpart is exempt from the requirements of paragraphs (a) and (b) of this section.

Clean Harbors Ohio has identified pressure relief devices with a closed vent system under PRD-C.

63.165(d)

(1) Any pressure relief device that is equipped with a rupture disk upstream of the pressure relief device is exempt from the requirements of paragraphs (a) and (b) of this section, provided the owner or operator complies with the requirements in paragraph (d)(2) of this section.

(2) After each pressure release, a rupture disk shall be installed upstream of the pressure relief device as soon as practicable, but no later than 5 calendar days after each pressure release, except as provided in § 63.171 of this subpart.

Clean Harbors Ohio has identified pressure relief devices with a closed vent system under PRD-RD.

Sampling Connection Systems

63.166(c)*In-situ* sampling systems and sampling systems without purges are exempt from the requirements of paragraphs (a) and (b) of this section.

Clean Harbors Ohio has not identified in situ sampling systems without purges.

Open Ended Lines/Valves

63.167(d) Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from the requirements of paragraphs (a), (b) and (c) of this section.

Clean Harbors Ohio has not identified any open-ended lines or valves that are needed for an emergency shutdown system.

63.167(e) Open-ended valves or lines containing materials which would autocatalytically polymerize or, would present an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block and bleed system as specified in paragraphs (a) through (c) of this section are exempt from the requirements of paragraph (a) through (c) of this section.

Clean Harbors Ohio has not identified any open-ended lines or valves that would autocatalytically polymerize or present a safety hazard if closed.

Valves

63.168(h) Any valve that is designated as unsafe-to-monitor is exempt from the requirements of (b) through (f), if:

LDAR Exemptions

(1) The owner or operator of the valve determines that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as consequence of complying with paragraphs (b) through (d); and

(2) The owner or operator of the valve has a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times, but not more frequently that the periodic monitoring schedule otherwise applicable.

Clean Harbors Ohio has not identified any valves that are unsafe-to-monitor on location.

63.168(i) Any valve that is designated as difficult-to-monitor is exempt from the requirements of paragraphs (b) through (d) if:

(1) The owner or operator of the valve determines that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface or it is not accessible at anytime in a safe manner;

(2) The process unit within which the valve is located is an existing source or the owner or operator designates less than 3 percent of the total number of valves in a new source as difficult-to-monitor; and

(3) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

Clean Harbors Ohio has identified valves that are difficult-to-monitor on location.

63.168(j) Any equipment located at a plant site with fewer than 250 valves in organic HAP service is exempt from the requirements for monthly monitoring and a quality improvement program specified in paragraph (d)(1) of this section. Instead, the owner or operator shall monitor each valve in organic HAP service for leaks once each quarter, or comply with paragraph (d)(3) or (d)(4) of this section except as provided in paragraphs (h) and (i) of this section.

Clean Harbors Ohio has more than 250 valves in organic HAP service

<u>Closed-vent systems and control devices</u>

63.172(k) Any parts of the closed vent system that is designated as unsafe-to-inspect is exempt from the requirements of (f)(1) and (f)(2), if:

(1) The owner or operator determines that the equipment is unsafe to inspect because inspecting personnel would be exposed to an immediate danger as consequence of complying with paragraphs (f)(1) and (f)(2); and

(2) The owner or operator has a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times, but not more frequently than annually.

Clean Harbors Ohio has not identified any closed vent systems that are unsafe-to-inspect on location.

63.172(l) Any parts of the closed vent system that is designated as difficult-to-inspect is exempt from the inspection requirements of paragraphs (f)(1) and (f)(2); if:

(1) The owner or operator determines that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface;

LDAR Exemptions

(2) The owner or operator has a written plan that requires inspection of the equipment at least once every five years.

Clean Harbors Ohio has identified closed vent system equipment that is difficult-to-inspect on location.

Agitators

(d) Each agitator equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraph (a) of this section, provided the requirements specified in paragraphs (d)(1) through (d)(6) of this section are met:

(1) Each dual mechanical seal system is:

(i) Operated with the barrier fluid at a pressure that is at all times greater than the agitator stuffing box pressure; or

(ii) Equipped with a barrier fluid degassing reservoir that is routed to a process or fuel gas system or connected by a closed-vent system to a control device that complies with the requirements of § 63.172 of this subpart; or

(iii) Equipped with a closed-loop system that purges the barrier fluid into a process stream.

(2) The barrier fluid is not in light liquid organic HAP service.

(3) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

Clean Harbors Ohio has not identified any agitators with dual mechanical seals on location.

(e) Any agitator that is designed with no externally actuated shaft penetrating the agitator housing is exempt from paragraphs (a) through (c) of this section.

Clean Harbors Ohio has not identified any agitators with without an externally actuated shaft penetrating the agitator housing on location.

(f) Any agitator equipped with a closed-vent system capable of capturing and transporting any leakage from the seal or seals to a process or fuel gas system or to a control device that complies with the requirements of § 63.172 of this subpart is exempt from the requirements of paragraphs (a) through (c) of the section.

Clean Harbors Ohio does not have any agitators with a closed vent system on location.

(g) Any agitator that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirement of paragraphs (b)(1) and (d)(4) of this section, and the daily requirements of paragraph (d)(5) of this section, provided that each agitator is visually inspected as often as practical and at least monthly.

Clean Harbors Ohio has not identified any agitators at an unmanned location.

(h) Any agitator that is difficult-to-monitor is exempt from the requirements of paragraphs (a) and (b) of this section if:

LDAR Exemptions

(1) The owner or operator determines that the agitator cannot be monitored without elevating the monitoring personnel more than two meters above a support surface or it is not accessible at anytime in a safe manner;

(2) The process unit within which the agitator is located is an existing source or the owner or operator designates less than three percent of the total number of agitators in a new source a difficult-to-monitor; and

(3) The owner or operator follows a written plan that requires monitoring of the agitator at least once per calendar year.

Clean Harbors Ohio has not identified any agitators that are difficult-to-monitor at this time.

(i) Any agitator that is obstructed by equipment or piping that prevents access to the agitator by a monitor probe is exempt from the monitoring requirements of paragraphs (a) through (d) of this section.

Clean Harbors Ohio has not identified any agitators that are obstructed preventing access to the agitator on location.

Connectors

63.174(f) Any connector that is designated as unsafe-to-monitor is exempt from the requirements of (a), if:

(1) The owner or operator of the connector determines that the connector is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as consequence of complying with paragraphs (a) through (e); and

(2) The owner or operator of the connector has a written plan that requires monitoring of the connector as frequently as practicable during safe-to-monitor times, but not more frequently that the periodic monitoring schedule otherwise applicable.

Clean Harbors Ohio has not identified any connectors that are unsafe-to-monitor on location.

63.174(g) Any connector that is designated as unsafe-to-repair is exempt from the requirements of paragraphs (a), (d) through (e) if:

(1) The owner or operator of the connector determines that the connector because personnel would be exposed to an immediate danger as consequence of complying with paragraphs (d);

(2) The connector will be repaired before the end of the next scheduled process unit shutdown.

(3) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

Clean Harbors Ohio has not identified any connectors that are unsafe-to-repair on location at this time.

LDAR Exemptions

63.174(h)(1) Any connector that is inaccessible or is ceramic or ceramic-lined, is exempt from the monitoring requirements of paragraphs (a) and (c) of this section and from the recordkeeping and reporting requirements of this subpart. An inaccessible connector is one that is:

(i) Buried;

Clean Harbors Ohio has not identified any buried connectors that are inaccessible on location at this time.

(ii) Insulated in a manner that prevents access to the connector by a monitor probe;

Clean Harbors Ohio has identified groups of connectors that are inaccessible due to insulation on location at this time.

(iii) Obstructed by equipment or piping that prevents access to the connector by a monitor probe;

Clean Harbors Ohio has not identified groups of connectors that are inaccessible due to obstructions on location at this time.

(iv) Unable to be reached from a wheeled scissor-left or hydraulic-type scaffold which would allow access to connectors up to 7.6 meters (25 feet) above the ground;

Clean Harbors Ohio has not identified groups of connectors that are inaccessible due to being unable to reach from a wheeled scissor-lift or hydraulic type scaffold which would allow access to connectors up to 7.6 meters (25 feet) above the ground on location at this time.

(v) Inaccessible because it would require elevating the monitor personnel more than 2 meters above a permanent support surface or would require the erection of scaffold; or

Clean Harbors Ohio has identified groups of connectors that are inaccessible due to elevating personnel more than 2 meters above a permanent support surface or would require erection of scaffolding on location at this time.

(vi) Not able to be accessed at any time in a safe manner to perform monitoring. Unsafe access includes, but is not limited, the use of a wheeled scissor-lift on unstable or uneven terrain, the use of a motorized man-lift basket in areas where an ignition potential exists, or access would require near proximity to hazards such as electrical lines, or would risk damage to equipment.

Clean Harbors Ohio has not identified groups of connectors that are inaccessible due to being unsafe on location at this time.

<u>Recordkeeping</u>

63.181(b)(2)(i) and (iii) A list of identification numbers for equipment that the owner or operator elects to equip with a closed-vent system and control device.

Clean Harbors Ohio has not identified equipment equipped with a closed-vent system or control device on location at this time.

63.181(b)(2)(ii) A list of identification numbers for compressors that the owner or operator elects to designate as operating with no detectable emissions.

LDAR Exemptions

Clean Harbors Ohio has not identified any compressors on location at this time.

63.181(b)(3)(i) A list of identification numbers for pressure relief devices subject to 63.165(a).

Clean Harbors Ohio has not identified any PRDs operating with no detectable emissions on location at this time.

63.181(b)(3)(ii) A list of identification numbers for pressure relief devices equipped with a rupture disk, subject to 63.165(d).

Clean Harbors Ohio has identified PRDs operating with rupture disks on location.

(insert inventory here)

63.181(b)(6) The following information shall be recorded for each dual mechanical seal system:

(i) Design criteria and explanation of design criteria

(ii) Any changes to these criteria and the reasons for the changes.

Clean Harbors Ohio has not identified any dual mechanical seal pumps or agitators on location at this time.

63.181(b)(7) The following information pertaining to all pumps subject to the provisions of UTM, valves subject to the provisions of UTM and DTM of this subpart, agitators subject to the provisions of DTM and UTM and connectors subject to the provisions of UTM and UTR of this subpart shall be recorded:

(i) Identification of equipment designated as unsafe to monitor, difficult to monitor, or unsafe to inspect and the plan for monitoring or inspecting this equipment.

Clean Harbors Ohio has not identified any unsafe to monitor equipment at this time. Clean Harbors Ohio has identified Difficult to monitor equipment. See Exhibit 5. Clean Harbors Ohio has not identified any unsafe to inspect equipment at this time.

(iii) A list of identification numbers for connectors that are designated as unsafe to repair and an explanation why the connector is unsafe to repair.

Clean Harbors Ohio has not identified any unsafe to repair equipment at this time.

Exhibit 3

Training Program Overview

Training Program

Employee	Module	Title	Office	Field	Web x	Test	Eval	Date taken
LDAR Technician	101	Regulatory Review-40 CFR 264 Subpart BB	✓		Optional	✓		
	102	Regulatory Review-40 CFR 63 Subpart DD	✓		Optional	✓		
	103	Regulatory Review-40 CFR 63 Subpart H	✓		Optional	✓		
	104	U.S. EPA Method 21	✓	✓	Optional	✓	✓	
	105	Facility Process	✓	✓	Optional	✓	✓	
	106	Documentation Requirements	✓	✓	Optional		✓	
	107	Repair Requirements	✓		Optional		✓	
	108	Recordkeeping Requirements	✓		Optional		✓	
	109	Reporting Requirements	✓		Optional		✓	
	110	Tagging & Inventory	✓	✓	Optional		✓	
	111	Management of Change	✓	✓	Optional		✓	
	112	LDAR Manual	✓		Optional		✓	
	113	EPA Best Management Practices	✓		Optional		✓	

LDAR TECHNICIAN-complete each module initially upon hire and annually

101 – **Regulatory Review-40 CFR 264 Subpart BB:** The module focuses on the requirements of the RCRA regulation, including applicability, exemptions, monitoring, documentation requirements. This training will be completed by a qualified trainer.

102 – **Regulatory Review-40 CFR 63 Subpart DD:** The module focuses on the requirements of the regulation, including applicability, exemptions, monitoring, documentation requirements. This training will be completed by a qualified trainer.

103 – **Regulatory Review-40 CFR 63 Subpart H:** The module focuses on the requirements of the regulation, including applicability, exemptions, monitoring, documentation requirements. This training will be completed by a qualified trainer.

104 – U.S. EPA Method 21: The module focuses on the instrument requirements, type I & II leak monitoring, terminology and definitions, Calibration-Precision tests, Calibrations, response times, response factors, calibration gases and documentation. This training will be completed by a qualified trainer.

105 – **Facility Process**: The module focuses on the process, including types of equipment, components and process flow. This training will be completed by a qualified trainer.

106 – **Documentation Requirements**: The module focuses on Documentation requirements for the LDAR Program. This training will be completed by a qualified trainer.

107 – **Repair Requirements:** The module focuses on the repair requirements regarding 40 CFR Part 63 Subpart H. This training will be completed by a qualified trainer.

108 – **Recordkeeping Requirements**: The module focuses on recordkeeping requirements regarding 40 CFR Part 63 Subpart H. This training will be completed by a qualified trainer.

109 –**Reporting Requirements**: The module focuses on reporting requirements. This training will be completed by a qualified trainer.

110 – **Tagging & Inventory**: The module focuses on the requirements and process for identification of equipment, components, process units for adding and auditing inventory. This training will be completed by a qualified trainer.

Training Program

111 – **Management of Change**: The module focuses on the process for ensuring all changes to the inventory are identified and documented. This training will be completed by a qualified trainer.

112 – **LDAR Manual:** The module focuses on a review of the Clean Harbors Chicago LDAR Manual. This training will be completed by a qualified trainer.

113 –**EPA Best Management Practices:** The module focuses on best practices that may or may not be implemented, but encourages to operate with the mindset of improving the program. This training will be completed by a qualified trainer.

MONTROSE
AIR QUALITY SERVICES

Montrose Air Quality Services, LLC.

Training Record

Topic: Method 21 Basic Concepts

Montrose Air Quality Services, LLC. certifies that (Name) _____

(Job Title) _____ satisfactorily completed the below listed

training topics on (Date)_____.

I have attended Montrose Air Quality Services training. The outline of this training can be found in the Montrose Air Quality Services Santa Ana office, and is intended to comply with the applicable training requirements found in the Montrose Air Quality Services, Training Program. During the training I was given the opportunity to ask questions to clarify information and skills presented. I understand the material presented and feel comfortable using it in the work place.

Trainee Signature:_____ Date_____

Manager Responsible for topic training: _____ Date_____

Trainer Signature: _____ Date_____

Topics covered include: Method 21 Basic Concepts

Documents made available to employee

- PowerPoint Handout Document
- Method 21 Handout
- Method 21 Quiz

Exhibit 4

LDAR Inventory Log

Inventory Log

Facility Code	Inspection Point Number	Tag Number	Barcode	Inspection Point Status	Hazardous Waste Mgmt Unit	Area (ultimate parent)	Subarea (parent)	Equipment Type	Equipment	# Connectors	Location	Facility Drawing Reference	Facility Drawing Name	Waste Type	Percentage by Weight	Unsafe to Monitor	Difficult To Monitor	Reason DTM/UTM	In Service Date	Removal Date	Override Inspection Freq	Monitoring Method

Exhibit 5

Difficult-to-Monitor Plan

Difficult to Monitor Plan

Difficult to Monitor equipment are documented here in this plan referencing the regulatory requirement and the inventory. The inventory will be updated routinely as changed.

Valves

63.168(i) Any valve that is designated, as described in § 63.181(b)(7)(ii) of this subpart, as a difficult-to-monitor valve is exempt from the requirements of paragraphs (b) through (d) of this section if:

(1) The owner or operator of the valve determines that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface or it is not accessible at anytime in a safe manner;

Clean Harbors Ohio has identified valves that are determined to be difficult-to-monitor.

(2) The process unit within which the valve is located is an existing source or the owner or operator designates less than 3 percent of the total number of valves in a new source as difficult-to-monitor; and

Clean Harbors Ohio difficult-to-monitor valves will not exceed 3 percent per process unit of a new source.

(3) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

Clean Harbors will monitor the difficult-to-monitor equipment annually during the 1st quarter of each year.

Closed Vent System

63.172(l) Any parts of the closed-vent system that are designated, as described in § 63.181 (b)(7)(i) of this subpart, as difficult to inspect are exempt from the inspection requirements of paragraphs (f)(1) and (f)(2) of this section if:

(1) The owner or operator determines that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface; and

Clean Harbors Ohio has identified closed vent system that are determined to be difficult-to-inspect.

(2) The owner or operator has a written plan that requires inspection of the equipment at least once every 5 years.

Clean Harbors Ohio will monitor the difficult-to-inspect equipment for the closed vent system during the 1st quarter of every 5th year. The cycle starts in 1st quarter 2020.

Agitators

63.173(h) Any agitator that is difficult-to-monitor is exempt from the requirements of paragraphs (a) through (d) of this section if:

(1) The owner or operator determines that the agitator cannot be monitored without elevating the monitoring personnel more than two meters above a support surface or it is not accessible at anytime in a safe manner;

Difficult to Monitor Plan

Clean Harbors Ohio does not have any agitators that are difficult to monitor on location.

(2) The process unit within which the agitator is located is an existing source or the owner or operator designates less than three percent of the total number of agitators in a new source as difficult-to-monitor; and

(3) The owner or operator follows a written plan that requires monitoring of the agitator at least once per calendar year.

63.173(i) Any agitator that is obstructed by equipment or piping that prevents access to the agitator by a monitor probe is exempt from the monitoring requirements of paragraphs (a) through (d) of this section.

Clean Harbors Ohio does not have any agitators that are difficult to monitor on location.

<u>Connectors</u>

63.174(h)

(1) Any connector that is inaccessible or is ceramic or ceramic-lined (e.g., porcelain, glass, or glass-lined), is exempt from the monitoring requirements of paragraphs (a) and (c) of this section and from the recordkeeping and reporting requirements of § 63.181 and § 63.182 of this subpart. An inaccessible connector is one that is:

(i) Buried;

Not applicable

(ii) Insulated in a manner that prevents access to the connector by a monitor probe;

Clean Harbors Ohio has identified connectors that are determined to be inaccessible due to insulation.

(iii) Obstructed by equipment or piping that prevents access to the connector by a monitor probe;

Clean Harbors Ohio has identified connectors that are determined to be inaccessible to an obstruction.

(iv) Unable to be reached from a wheeled scissor-lift or hydraulic-type scaffold which would allow access to connectors up to 7.6 meters (25 feet) above the ground;

Clean Harbors Ohio has identified connectors that are determined to be inaccessible due to access needed with a wheeled scissor-lift or hydraulic type scaffold allowing access to connectors up to 7.6 meters above the ground.

(v) Inaccessible because it would require elevating the monitoring personnel more than 2 meters above a permanent support surface or would require the erection of scaffold; or

Clean Harbors Ohio has identified connectors that are determined to be inaccessible due to elevating monitoring personnel more than 2 meters above a permanent support surface or erection of scaffolding.

Difficult to Monitor Plan

(vi) Not able to be accessed at any time in a safe manner to perform monitoring. Unsafe access includes, but is not limited to, the use of a wheeled scissor-lift on unstable or uneven terrain, the use of a motorized man-lift basket in areas where an ignition potential exists, or access would require near proximity to hazards such as electrical lines, or would risk damage to equipment.

Clean Harbors Ohio has identified connectors that are determined to be inaccessible due to being unsafe.

Recordkeeping

63.181(b)(7) The following information pertaining to all pumps subject to the provisions of § 63.163(j), valves subject to the provisions of § 63.168(h) and (i) of this subpart, agitators subject to the provisions of § 63.173(h) through (j), and connectors subject to the provisions of § 63.174(f) and (g) of this subpart shall be recorded:

(i) Identification of equipment designated as unsafe to monitor, difficult to monitor, or unsafe to inspect and the plan for monitoring or inspecting this equipment.

(Insert Inventory Here)

(ii) A list of identification numbers for the equipment that is designated as difficult to monitor, an explanation of why the equipment is difficult to monitor, and the planned schedule for monitoring this equipment.

(Insert inventory Here)

Exhibit 6

Unsafe-to-Monitor Plan

Unsafe to Monitor Plan

Unsafe to Monitor equipment are documented here in this plan referencing the regulatory requirement and the inventory will be updated routinely as changed.

Pumps

63.163(j) Any pump that is designated, as described in § 63.181(b)(7)(i) of this subpart, as an unsafe-to-monitor pump is exempt from the requirements of paragraphs (b) through (e) of this section if:

(1) The owner or operator of the pump determines that the pump is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraphs (b) through (d) of this section; and

Clean Harbors Hebron does not have any unsafe-to-monitor pumps at this time.

(2) The owner or operator of the pump has a written plan that requires monitoring of the pump as frequently as practical during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable.

Clean Harbors Hebron does not have any unsafe-to-monitor pumps at this time.

Valves

63.168(h) Any valve that is designated, as described in § 63.181(b)(7)(i) of this subpart, as an unsafe-to-monitor valve is exempt from the requirements of paragraphs (b) through (f) of this section if:

(1) The owner or operator of the valve determines that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraphs (b) through (d) of this section; and

Clean Harbors Hebron does not have any unsafe-to-monitor valves at this time.

(2) The owner or operator of the valve has a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable.

Clean Harbors Hebron does not have any unsafe-to-monitor valves at this time.

Agitators

63.173(j) Any agitator that is designated, as described in § 63.181(b)(7)(i) of this subpart, as an unsafe-to-monitor agitator is exempt from the requirements of paragraphs (a) through (d) of this section if:

(1) The owner or operator of the agitator determines that the agitator is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraphs (a) through (d) of this section; and

Clean Harbors Hebron does not have any unsafe-to-monitor agitators at this time.

(2) The owner or operator of the agitator has a written plan that requires monitoring of the agitator as frequently as practical during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable.

Clean Harbors Hebron does not have any unsafe-to-monitor agitators at this time.

Unsafe to Monitor Plan

Connectors

63.174(f) Any connector that is designated, as described in § 63.181(b)(7)(i) of this subpart, as an unsafe-to-monitor connector is exempt from the requirements of paragraph (a) of this section if:

(1) The owner or operator determines that the connector is unsafe to monitor because personnel would be exposed to an immediate danger as a result of complying with paragraphs (a) through (e) of this section; and

Clean Harbors Hebron does not have any unsafe-to-monitor connectors at this time.

(2) The owner or operator has a written plan that requires monitoring of the connector as frequently as practicable during safe to monitor periods, but not more frequently than the periodic schedule otherwise applicable.

Clean Harbors Hebron does not have any unsafe-to-monitor connectors at this time.

63.174(g) Any connector that is designated, as described in § 63.181(b)(7)(iii) of this subpart, as an unsafe-to-repair connector is exempt from the requirements of paragraphs (a), (d), and (e) of this section if:

(1) The owner or operator determines that repair personnel would be exposed to an immediate danger as a consequence of complying with paragraph (d) of this section; and

Clean Harbors Hebron has not identified any unsafe to repair equipment at this time.

(2) The connector will be repaired before the end of the next scheduled process unit shutdown.

Clean Harbors Hebron has not identified any unsafe to repair equipment at this time.

Recordkeeping

63.181(b)(7) The following information pertaining to all pumps subject to the provisions of § 63.163(j), valves subject to the provisions of § 63.168(h) and (i) of this subpart, agitators subject to the provisions of § 63.173(h) through (j), and connectors subject to the provisions of § 63.174(f) and (g) of this subpart shall be recorded:

(i) Identification of equipment designated as unsafe to monitor, difficult to monitor, or unsafe to inspect and the plan for monitoring or inspecting this equipment.

Clean Harbors Hebron has not identified any unsafe to monitor equipment at this time. Should future equipment be identified a copy of the inventory will be inserted here.

(iii) A list of identification numbers for connectors that are designated as unsafe to repair and an explanation why the connector is unsafe to repair.

Clean Harbors Hebron has not identified any unsafe to repair equipment at this time. Should future equipment be identified a copy of the inventory will be inserted here.

Exhibit 7

Summary of Equipment Changes

Clean Harbors Logo	**Summary of Equipment Changes**	Document Control ID:	
		Revision Date:	Revision#:
		Owner:	

INSTRUCTIONS

This form is to be utilized to document to changes to the inventory in the LDAR Program to be utilized during the Semi-Annual Report.

Summary of Additions

Date	Process Unit	Area	Subarea	Pumps	Compressors	PRDs	Sampling systems	Valves	Closed Vent System	Agitators	Connectors

Summary of Removals

Date	Process Unit	Area	Subarea	Pumps	Compressors	PRDs	Sampling systems	Valves	Closed Vent System	Agitators	Connectors

Net Changes

Date	Process Unit	Area	Subarea	Pumps	Compressors	PRDs	Sampling systems	Valves	Closed Vent System	Agitators	Connectors

PERSONNEL SIGNING THIS FORM DO SO ONLY AFTER THEY ARE SATISFIED THAT ALL ELEMENTS OF THE WEEKLY REPORT HAVE BEEN SATISFACTORILY ADDRESSED.

LDAR Technician:	Date:	Quality Analyst:	Date:
Maintenance Manager:	Date:	Compliance Manager:	Date:

Exhibit 8

Process Change Request & Notice of Change

CleanHarbors	**Process Change Request & Notice of Change**	**Document Control ID:** CHES.00081.FM-10HS **Revision Date:** 10-Nov-2017 | **Revision #:** 3 **Owner:** 10HS

PCR #:	**AREA:**	**WORK ORDER #**
INITIATED BY (PLEASE PRINT):	**DEAPARTMENT REQUESTING CHANGE:**	
DATE PCR SUBMITTED:	**DATE CHANGE REQUIRED:**	**IS THE CHANGE:** ☐ SCHEDULED ☐ UNSCHEDULED

THIS CHANGE IS BEING MADE TO A:
☐ PSM ☐ RMP ☐ NOT COVERED PROCESS

THIS CHANGE IS BEING REQUESTED TO COMPLY WITH:
☐ PSM ☐ RMP ☐ EHS ☐ COMPLIANCE ☐ AS A RESULT OF AN INCIDENT
☐ AUDIT RECOMMENDATION ☐ COST IMPROVEMENT ☐ CUSTOMER REQUIREMENT
☐ OTHER:

DEPARTMENT PERFORMING THE CHANGE:

DESCRIPTION OF CHANGE:

JUSTIFICATION OF CHANGE REQUESTED:

IS CHANGE: ☐ PERMANENT ☐ TEMPORARY	**IF TEMPORARY, PLEASE IDENTIFY EXPECTED DURATION OF THE CHANGE:**

COMPLETE THE FOLLOWING:

Does the proposed change involve material of construction, or type of equipment, or operating function? ☐ YES ☐ NO

Technical basis of the change:

Does the proposed change require modifications to the existing operating procedures, alarm set points, or process control limits? If YES, change will be field verified by: ☐ YES ☐ NO

PLANT AREA MANAGER (SIGNATURE):	**DATE:**
HEALTH & SAFETY MANAGER (SIGNATURE):	**DATE:**

Has the proposed change been reviewed to determine if the design basis safety standards are still intact? ☐ YES ☐ NO

Does the proposed change impact Safety and Health and/or Environmental compliance? ☐ YES ☐ NO

POTENTIAL HSE IMPACT AS A RESULT OF PROPOSED CHANGE*:

*** If there is a Health, Safety or Environment impact, a risk assessment must be conducted and referenced.**

Once implemented, will the change require additional training for personnel responsible for operating or maintaining the system/process/ or equipment? ☐ YES ☐ NO

TRAINING REQUIREMENT DETAILS FOR THE CHANGE (IF APPLICABLE):

Does the proposed change require a pre-start up safety review? (ALWAYS REQUIRED FOR PSM or RMP COVERED PROCESSES OR OPERATIONS) ☐ YES ☐ NO

Does the proposed change require the use of personal protective equipment? If YES, specify: ☐ YES ☐ NO

Is the proposed change going to be performed by: ☐ Clean Harbors personnel ☐ Contractors

If work is to be performed by Contractors, how are the hazards of the process/system/equipment to be communicated to the contractor?

How will it be documented?

COMMUNICATION DETAILS TO THOSE AFFECTED BY THE CHANGE (i.e. e-mail notification, meeting, bulletin, etc.):

What method of analysis was used to conduct the process/system/equipment change review?

☐ CHECKLIST ☐ WHAT IF ☐ WHAT IF CHECKLIST ☐ FEMA ☐ HAZOP ☐ FAULT TREE
☐ OTHER:

☐ ATTACHED: ☐ OR FILE REFERENCE:

Which individual(s) participated on the change review? (Engineering, Operations, Safety, Technical, Training)?

NAME	TITLE	DATE

Did the review identify recommendations, corrective measures, action items, etc., to be completed before initial start up? ☐ YES ☐ NO

If YES, have all recommendations/corrective actions been completed? ☐ YES ☐ NO
(Please attach the list or provide a file reference)

Please identify what process/system document(s) (e.g., P&ID, procedures) need to be modified:

Document Name	I.D. Number	Date Completed

PERSONNEL APPROVING AND AUTHORIZING THIS PROCESS CHANGE REQUEST SHALL DO SO ONLY AFTER THEY ARE SATISFIED THAT ALL ELEMENTS OF THE PROCESS/SYSTEM REVIEW HAVE BEEN SATISFACTORILY ADDRESSED.

OPERATIONS MANAGER:	**DATE:**	**ENGINEERING MANAGER:**	**DATE:**
HEALTH & SAFETY MANAGER:	**DATE:**	**ENVIRONMENTAL MANAGER:**	**DATE:**
MAINTENANCE MANAGER:	**DATE:**	**I & E SUPERVISOR:**	**DATE:**
TRAINING MANAGER:	**DATE:**	**AREA MANAGER/SUPERVISOR:**	**DATE:**
GENERAL MANAGER:	**DATE:**	**OTHER:**	**DATE:**
OTHER:	**DATE:**	**OTHER:**	**DATE:**

PROCESS CHANGE REQUEST - NOTICE OF CHANGE

AREA OF CHANGE:	PCR #:
EQUIPMENT AFFECTED:	
CHANGES:	
SUMMARY OF CHANGES IN THE OPERATING PROCEDURE (INCLUDING REVISED SOP #):	
CONTACT FOR ADDITIONAL INFORMATION:	IMPLEMENTATION DATE:
REVIEW BY OPERATORS IS REQUIRED BY:	

VERIFICATION OF REVIEW:

I understand and have been trained with respect to the change and understand how this change affects me. I also understand who I contact should I have any questions.

AFFECTED OPERATOR	SIGNATURE

VERIFICATION OF REVIEW:	
I understand and have been trained with respect to the change and understand how this change affects me. I also understand who I contact should I have any questions.	
AFFECTED OPERATOR	**SIGNATURE**

Copy this page for additional signatures if necessary.

Clean Harbors Logo	**Process Change Request & Notice of Change**	Document Control ID:	
		Revision Date:	Revision#:
		Owner:	

LEAK DETECTION AND REPAIR PROGRAM REVIEW
Has the LDAR Technician and Compliance Manager been notified of the change?
Determine the regulatory applicability of the new and/or modified process/equipment/stream/components? If stream is changed determine HAP/VOC percent content? (attach determination)
Has the inventory been updated to reflect the addition/modification/removal of equipment? (attach log)
Has the initial inspection been performed? (attach log)
Has the inspection schedule/log been updated for routine inspections? (attach updated schedule/log)
Has the LDAR Manual been updated to reflect the change? (attach updated manual)

PERSONNEL APPROVING AND AUTHORIZING THIS PROCESS CHANGE REQUEST SHALL DO SO ONLY AFTER THEY ARE SATISFIED THAT ALL ELEMENTS OF THE PROCESS/SYSTEM REVIEW HAVE BEEN SATISFACTORILY ADDRESSED.

LDAR Technician:	Date:	
Compliance Manager:	Date:	

Exhibit 9

LDAR Weekly Progress

Clean Harbors Logo	**LDAR Weekly Progress**	Document Control ID:	
		Revision Date:	Revision#:
		Owner:	

INSTRUCTIONS

This form is to be utilized to document updates in the LDAR Program between the Maintenance Manager, LDAR Technician, Quality Analyst and Compliance Manager.

Maintenance: Reported Like-In-Kind Changes

Process Unit	Area	Subarea	Equipment	Tag No.	Date of Change	Date Inventory Updated	Date Method 21 Performed	Leaks Identified (Y/N)	Plan Updated (Y/N)	Comment

LDAR Technician: Identified Changes Not Reported by Maintenance

Process Unit	Area	Subarea	Equipment	Tag No.	Date of Change	Date Inventory Updated	Date Method 21 Performed	Leaks Identified (Y/N)	Plan Updated (Y/N)	Date of Training

Maintenance: Connectors Opened or Seal Broken

Process Unit	Area	Subarea	Equipment	Date of Change	Date Method 21 Performed	Technician	Instrument	Reading	Leaks Identified (Y/N)	Comment

Maintenance Manager Updates

LDAR Technician Updates

Quality Analyst Updates

PERSONNEL SIGNING THIS FORM DO SO ONLY AFTER THEY ARE SATISFIED THAT ALL ELEMENTS OF THE WEEKLY REPORT HAVE BEEN SATISFACTORILY ADDRESSED.

LDAR Technician:	Date:	Quality Analyst:	Date:
Maintenance Manager:	Date:	Compliance Manager:	Date:

Exhibit 10

U.S. EPA Method 21 Calibration Form

MONTROSE
AIR QUALITY SERVICES

U.S. EPA METHOD 21
CALIBRATION FORM

This instrument(s) has been calibrated according to U.S. EPA Test Method 21 prior to use each inspection day. The calibration gases have been analyzed and certified by the manufacturer to be within + or - 2% accurate. A copy of this certification is attached to this certification

COMPANY: _____

FACILITY: _____

	Calibration Gases			
	Calibration Gas Standard	Cylinder ID #	Actual Concentration (ppm)	Expiration Date
Zero	Air			
Span 1	Methane			
Span 2	Methane			
Span 3	Methane			

Calibration Test								
Date	Time	Instrument ID	Probe Type	Zero	Span 1	Span 2	Span 3	Technician

Calibration Test Procedures

The calibration test shall be performed prior to each inspection day. Warm up the instrument per manufacturer instructions and zero internal calibration procedures. Introduce the calibration gas to the sample probe. Record the meter reading for one run. If the value does not match, re-calibrate.

MONTROSE AIR QUALITY SERVICES, LLC
1 PARK PLAZA, SUITE 1000
IRVINE, CA 92604, 949-988-3500
WWW.MONTROSE-ENVIRONMENTAL.COM

Exhibit 11

Maintenance Procedure

FOXBORO

Thermo Electron Corporation
Environmental Instruments, Air Quality Products
27 Forge Parkway, Franklin, MA 02038
Tel: 508-520-0430 Toll Free: 866-282-0430
Fax: 508-520-2800 www.thermo.com/aqp

TVA-1000 Maintenance Procedure

Remember: Proper maintenance helps to ensure trouble-free operation and maximizes up-time!

Start Time: _____

Name: _____

Daily Maintenance checklist: I.D. Number: _____ Date: _____

- ☐ With pump off, orient analyzer so that sample line connections face down
- ☐ Remove from sidepack and visually inspect sample line fitting for blockage
- ☐ Check sidepack filter cup and probe filter cup or WATERTRAP Probe membrane. Replace as necessary and clean debris from sample line adapter fitting.
- ☐ Check sample line and readout cable for visible damage and contamination
- ☐ Calibrate analyzer in the manual mode and record the following after warm-up (or calibrate in the Auto mode and return to manual mode to record data):

FID: Zero counts_____ (should be < 5000 counts)
Span counts_____ (must = 175-250 counts/PPM Methane) =
PID: Zero counts_____ (should be < 20000 counts) (Counts/PPM)
Span counts_____ (must = 3500-6000 counts/PPM Isobutylene)

Methane Check_____ Zero Check_____

Example: $\frac{\text{Span Counts} - \text{Zero Counts}}{\text{Span Concentration (ppm)}} = \frac{25500 - 4100}{102\ \text{PPM}} = 210\ \text{Counts / PPM}$

Note: If TVA-1000 is used in logging mode, this data is also included in header information. Retain this data for trend analysis. Although the values may change daily, the data can be a valuable resource for trend analysis.

At the end of the day or shift:

- ☐ Remove the FID endcap. Blow-out with dry air (if moist) and replace insert if discolored
- ☐ Remove FID capsule. If visibly wet, shake-out excess water and let air-dry overnight
- ☐ Perform visual inspection for signs of damage (especially ignitor wire)

Weekly Maintenance Checklist

- ☐ Replace sidepack and probe filter cups / water trap probe and clean sample line adapter fitting
- ☐ For all PID lamps except the 11.8 eV: Remove the PID capsule according to the instructions in the maintenance section of the manual. Clean the lamp with a cotton swab and isopropyl alcohol. Dry the cartridge with a heat gun for 60 seconds to evaporate the alcohol. Reinstall the cartridge and cap. *Note: Refer to MI 611-183 in the instruction book on cleaning techniques for the 11.8 eV lamp*
- ☐ Check and tighten strain relief screws on readout assembly and screws securing three connectors on the sidepack assembly
- ☐ If possible, store the unit in a dry environment when not in use

Exhibit 12

U.S. EPA Method 21 Calibration-Precision and Response Time Test

MONTROSE AIR QUALITY SERVICES

U.S. EPA METHOD 21
CALIBRATION - PRECISION TEST AND RESPONSE TIME

This instrument has been calibrated-precision tested according to U.S. EPA Test Method 21 at a minimum of 3-month intervals and as instruments are modified or put back into service. The calibration gases have been analyzed and certified by the manufacturer to be within + or - 2% accurate. A copy of this certification is attached to this certification form.

DATE AND TIME: _____

TECHNICIAN: _____

INSTRUMENT ID: _____

PROBE TYPE: _____

Calibration Gases

	Calibration Gas Standard	Cylinder ID #	Actual Concentration (ppm)	Expiration Date	Sample Bag Number	Bag Leaks Y/N
ZERO AIR	Air					
SPAN 1 GAS	Methane					
SPAN 2 GAS	Methane					
SPAN 3 GAS	Methane					

Calibration - Precision Test

	Run 1 (ppm)	Run 2 (ppm)	Run 3 (ppm)	Average Algebraic Difference[1]	Percent of Standard[2]
ZERO AIR					
SPAN 1 GAS					
SPAN 2 GAS					
SPAN 3 GAS					

Response Time Test

	90% of Calibration standard	Run 1 (sec)	Run 2 (sec)	Run 3 (sec)	Total Seconds	Average[3]
ZERO AIR						
SPAN 1 GAS						
SPAN 2 GAS						
SPAN 3 GAS						

Required Scan Time[4]	

Calibration - Precision Test Procedures

The calibration - precision Test shall be performed at minimum 3 month intervals or at next use. Make a total of three measurements by alternately using zero (air) gas and the specified calibration gas. Record the meter readings. The percent of standard shall be equal to or less than 10% of the calibration gas value. If it is greater than 10%, re-calibrate.

[1] Average Algebraic Difference = $\frac{(\text{Test1 - Actual Conc.}) + (\text{Test2 - Actual Conc.}) + (\text{Test3 - Actual Conc.})}{3}$

[2] Percent of Standard= $\frac{\text{Average Algebraic Difference}}{\text{Actual Concentration}} * 100\%$

Response Time Procedures

The response time test is required before placing the instrument into service. If a modification to the sample pumping system or flow configuration is made that would change the response time then a new test is required. Introduce zero gas into the sample probe. When meter reading has stabilized, switch quickly to the calibration gas. After switching, measure the time required to attain 90 percent of the final stable reading. Perform this test sequence three times and record the results. The average response time shall be equal to or less than 30 seconds. The probe that will be used during inspection including the probe filter must be in place during the testing.

[3] Average = $\frac{(\text{Run 1} + \text{Run 2} + \text{Run 3})}{3}$

[4] Required Scan Time = 2 * Average Response Time

Response Time Test: Results are calculated by first calculating 90% of the calibration standard. This is the reading at which the instrument must respond within 30 seconds if it is to pass this part of the certification test. By inserting the calibration gas and measuring, in seconds, the amount of time it requires to reach this 90% figure.

MONTROSE AIR QUALITY SERVICES, LLC
1 PARK PLAZA, SUITE 1000
IRVINE, CA 92604, 949-988-3500
WWW.MONTROSE-ENVIRONMENTAL.COM

Exhibit 13

U.S. EPA Method 21 Inspection Log

Company:
Facility:

U.S. EPA Method 21
Inspection Log

Process Unit: ______________________________
Area: ______________________________
Subarea:

Tag #	Equipment	Location	Monitoring Frequency	Regulatory Leak Threshold	Monitoring Technician	Instrument	Initial (1st) Monitoring Date	1st Reading (PPM)	Pass/Fail	Repair Technician	1st Attempt to Repair (Date)	1st Repair Method	Monitoring Technician	Instrument	2nd Monitoring Date	2nd Reading (PPM)	Pass/Fail

Exhibit 14

Leak Tag

Appendix B
Maintenance Work Orders and Tagging

If a leak is found in any of the covered equipment, the person finding the leak must write a Maintenance Work Order (MWO), write "LDAR" the work order type, attach a tag to the leaking component, and notify the Supervisor. See below for a sample of the tag.

It is the Supervisor's responsibility to verify that a "LDAR" MWO has been written, that a tag has been attached, and that repairs will be timely scheduled. The Supervisor will schedule repairs as soon as possible, maintaining the "5 day first attempt, but no later than 15 days" criteria. "DD" MWO's must be entered into the computer at the first available weekday after the leak is detected.

Most of the time a leak will be repaired within a few hours after detection. When repairs are initiated immediately, and completed within a few hours after detection, the MWO can be completed after the repairs are completed, and a tag will not be required, **except for valves, which always get tagged**.

Laminated Tag:

CLEAN HARBORS HEBRON R/C

LDAR Monitoring

EQUIPMENT ID
(P&ID Tag)

_____

DATE LEAK FOUND/DETECTED

_____

Maintenance Work Order Number:

_____

Front of Tag

SUBPART DD LEAK DETECTION PROGRAM

1. Attach label when leak found or detected.
2. Write Date on tag.
3. Write LDAR Equipment ID on tag.
4. Write MWO for repair, and put MWO # on tag
5. Remove tag after repairs completed (except for Valves and Pressure Reliefs in gas/vapor service)
6. Remove tag after 3rd pass inspection if no leak has been found.
7. If a new leak was found before the 3rd pass inspection, write date on tag when new leak was detected/found, and new MWO number.

Note:
LDAR applies to equipment in service of HAZARDOUS WASTE with an organics concentration of 10% or more, In-Process equipment, and Product equipment. (Waste Water with < 10% organics is excluded)

Back of Tag

Exhibit 15

Leak Tracking Log

Month:
Year:

Process Leak Tracking and Retest

Waste or Non Waste	Tag #	Leak #	Process Unit	Equipment	Component	Component Type	Description	LDAR Technician	Method 21 Instrument	Date of Leak Identification	Leak Reading (ppm)	Date of 1st Attempt at Repair	Repair Technician	Repair Action	Date of Re-inspection	LDAR Technician	Method 21 Instrument	Re-inspection Reading (ppm)	Date of Repair	Repair Technician	Repair Action	Delay of Repair (fill form)	Reason for Delay	Date of Re-inspection	Re-inspection Reading (ppm)

Exhibit 16

Delay of Repair

Clean Harbors Logo	**Delay of Repair**	Document Control ID:	
		Revision Date:	Revision#:
		Owner:	

INSTRUCTIONS

In the event that a leak is technically infeasible to repair without a process unit shutdown within 15 calendar days from the date the leak was identified, then this form must be utilized to document the leak information and reason for the delay. The Maintenance Manager must sign off on this form giving approval for the delay of repair.

Like-In-Kind Changes

Process Unit: _____ Area: _____ Subarea: _____

Equipment Type: _____ Tag Number: _____

Date of Initial Identification: _____ Initial Leak Reading (PPM):

Step 2: Isolate the Leak

Is the leak isolated from organic HAP service?

Step 3: Delay of Repair Reason Documentation

Delay of Repair for Valves, Connectors, and Agitators

1) Emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair (Attach Calculation)?

2) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device

3) Is valve assembly replacement is necessary during the process unit shutdown?

4) Are valve assembly supplies depleted, and valve assembly supplies were sufficiently stocked before the supplies were depleted?

5) If yes, then an extension beyond the initial shutdown is allowed for valves that meet 1-4 above

Delay of Repair for Pumps

1) Repair requires replacing the existing seal design with a new system?

(i) A dual mechanical seal system that meets the requirements of § 63.163(e) of this subpart, or

(ii) A pump that meets the requirements of § 63.163(f) of this subpart, or

(iii) A closed-vent system and control device that meets the requirements of § 63.163(g) of this subpart; and

(2) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.

Step 4: Expected Date of Repair

Date of Expected Repair: _____

Step 5: Repair Complete

Date of Final Repair: _____

Final Reading (PPM):

PERSONNEL APPROVING AND AUTHORIZING THIS PROCESS CHANGE REQUEST SHALL DO SO ONLY AFTER THEY ARE SATISFIED THAT ALL ELEMENTS OF THE PROCESS/SYSTEM REVIEW HAVE BEEN SATISFACTORILY ADDRESSED.

LDAR Technician:	Date:	
Maintenance Manager:	Date:	

Exhibit 17

QA/QC Standards

Clean Harbors Ohio

Calibration QA/QC

7/1/2019

Inspection Data		Calibration Data		Requirements for Calibrating per Method 21 (Section 10)											Status
Date of Inspection	Instrument used	Date of Calibration	Instrument Used	Daily Calibration Performed	Zero Gas	1,000 ppm	500 ppm	Actual ppm Listed of Gas	Mixture of Methane and Air	Gases Analyzed and Certified by Manufacturer within 2 Percent Accuracy	Gas Cylinder Number Listed	Gas Expiration Date	Response Factor Determined	Response Factor < 10	

Calibration-Precision Response Time QA/QC

Date of Maintenance/ Flow Change	Calibration-Precision Date	Instrument Serial number	Tested Prior to Placing into Service	Test at 3 Month Intervals	3 Measurements Taken for Each Gas	Zero Gas	1,000 ppm	500 ppm	Mixture of Methane and Air	Gases Analyzed and Certified by Manufacturer within 2 Percent Accuracy	Gas Cylinder Number Listed	Gas Expiration Date	Recorded meter readings	Calculated Average Algebraic Difference	Represent Difference as Percent	Calibration-Precision is less than 10 Percent of the Calibration Gas Actual Value	Response Time Performed	Response Time Determined Before Placing into Service	Response Time determined after modifications made to pump or flow	Performed Response Time 3 Times For Each Gas	Average Response Time Calculated	Response Time less than 30 Seconds	Status

Subpart H Monitoring QA/QC

7/1/2019

Regulatory Basis	Monitoring Requirements	2021B	2021A	2020B	2020A	2019B	2019A	Status	Comments
63.163(b)(3)	Pumps-Visual Weekly								
63.163(b)(1)	Pumps-M21 Monthly								
63.164(a)	Compressors w/ seal system								
63.165(d)(1)	PRD replace rupture disk within 5 days								
63.166(a)	Sampling Connection Systems collects and recycle to process by dumping into drum, then into a tank								
63.167(a)(1)	OELs-cant have								
63.168(d)(1)(i)	Valves-Monthly								
63.168(i)(3)	Valves DTM-Annually								
63.169(a)	Pumps, Valves, Connectors, Agitators in HL; Instrumentation systems; PRD in liquid-if found by AVO leaking, monitor in 5 days M21								
63.170	Surge Control Vessels and Bottoms Receivers - must have CVS routed to control device								
63.171	Delay of Repair								
63.172(f)(1)	CVS and CD Hard Piping - Visual Annually								
63.172(l)(2)	CVS and CD DTM - once every 5 years, write plan								
63.173(b)	Agitators- Visual weekly								
63.173(a)	Agitators-Monthly M21								
63.174(a)(3)	Connectors-Annually								
63.174(c)(2)(ii)	Connectors-if opened/seal broken monitor M21 within first 3 months								
All	Attempt made in 5 days								
All	Repair complete in 15 days								
All	Reinspection complete in 15 days								

Subpart H Recordkeeping QA/QC

Regulatory Basis	Recordkeeping Item	2021B	2021A	2020B	2020A	2019B	2019A	Status	Comments
63.181 (b)(1)(i)	List of identification numbers for equipment* with total number of connectors indicated. Equipment includes Valves, Pumps, Agitators, Compressors, PRDs, Total count of connectors.								
(b)(1)(ii)	Monitoring Schedule for Valves and Connectors subject to 63.174								
(b)(1)(iii)	Equipment identified on a site plan, log entries, or other method								
(b)(2)(i)	List of identification numbers for equipment that is equipped with a Closed-vent systems and control devices								
(b)(2)(ii)	List of identification numbers for compressors w/<500ppm above background								
(b)(2)(iii)	Identification of surge control vessels or bottom receivers equipped with closed-vent system and control device								
(b)(3)(i)	List of identification numbers for pressure relief devices								
(b)(3)(ii)	List of identification numbers for pressure relief devices equipped with a rupture disk								
(b)(4)	Identification of instrumentation systems, only the system not individual components								
(b)(5)	Identification of screwed connectors using alternative of being monitored once within 3 months of returning to service if installed prior to 1992								
(b)(6)(i)	Information logged for Dual Mechanical Seals system: Design criteria to indicate leak and explanation for pumps, compressors and agitators								
(b)(6)(ii)	Any changes to these criteria and reason for change								
(b)(7)	Record of information for pump UTM, valves UTM, DTM, Agitators UTM, DTM, connectors UTM, UTR								
(b)(7)(i)	Identification of equipment UTM, DTM, UTI and Plan								
(b)(7)(ii)	List of Identification numbers for equipment that is designated as DTM and explanation why and planned schedule								
(b)(7)(iii)	List of identification numbers for connectors that are designated as UTR and explanation why								
(b)(8)(i)	List of valves removed from and added to process unit if the net credits for removed valves is expected to be used								
(b)(8)(ii)	A list of connectors removed from and added to the process unit and documentation of the integrity of the weld for any removed connectors. Not required unless the net credits for removed connectors is expected to be used.								
(b)(9)(i)	alternative option								
(b)(10)	For any leaks, weatherproof and readily visible identification, marked with equipment Identification number shall be attached to the leaking equipment								
(c)	Visual inspections on weekly pumps, shall document inspection was conducted and the date of the inspection. Retain for 2 years								
(d)(1)	For each leak pump, compressor, valve, HL equipment, instrumentation systems, PRD in liquid, CVS & CD, agitators, connectors, document instrument and equipment identification number and operator name, initials or id number								
(d)(2)	The date the leak was detected and the date of first attempt to repair leak								
(d)(3)	The date of successful repair								
(d)(4)	Maximum instrument reading measured by Method 21 after it is successfully repaired or determined nonrepairable								
(d)(5)	"Repair delayed) and reason for delay if not repaired within 15 days of discovery of leak								
(d)(5)(i)	Owner may develop written procedure that identifies conditions that justify delay of repair. May include as part of the startup/shutdown/malfunction plan for the source. Site relevant sections for reason for delay.								
(d)(5)(ii)	If delay of repair was caused by depletion of stocked parts, there must be documentaion that the spare parts were sufficiently stocked on site before depletion and the reason for depletion								

Subpart H Recordkeeping QA/QC

Regulatory Basis	Recordkeeping Item	2021B	2021A	2020B	2020A	2019B	2019A	Status	Comments
(d)(6)	Dates of process unit shutdowns that occur while the equipment is unrepaired								
(d)(7)(i)	Identification by list or location grouping or tagging connectors that have been opened or otherside has the seal broken since the last monitoring period								
(d)(7)(ii)	The date and results of monitoring for opened or seal broken connectors. All connectors monitored in location if grouped by location								
(d)(8)	Date and results of monitoring if using alternatives for batch processing								
(d)(9)	Copies of periodic reports								
(e)	Batch process record keeping								
(f)	Compressor record keeping								
(g)	Maintain record of information for CVS and CD								
(g)(1)(i)	Design schematics, specification of CD and P&IDs								
(g)(1)(ii)	Dates and descriptions of any changes in the design specifications								
(g)(1)(iii)	Flare design and results of compliance demonstration								
(g)(1)(iv)	Description of parameter or parameters monitored to ensure CD are operated and maintained in conformance with their design and explanation of why that parameter was selected for monitoring								
(g)(2)	Records of operation of CVS and CD								
(g)(2)(i)	Dates and durations when the CVS and CD are not operated as designed by monitoring parameters, including periods when a flare pilot light system does not have a flame								
(g)(2)(ii)	Dates and durations during which the monitoring system or monitoring device is inoperative								
(g)(2)(iii)	Dates and duration of start-ups and shutdowns of control devices								
(g)(3)	Record of inspections of CVS								
(g)(3)(i)	If no leaks detected, record that inspection was performed, the date of inspection and statement that no leaks were detected								
(g)(3)(ii)	For each leak, see section (d)								
(h)	Quality improvement plan recordkeeping								
(i)	Heavy Liquid equipment recordkeeping								
(j)	Identification by list or location grouping or tagging connectors that have been opened or otherside has the seal broken since the last monitoring period								
(k)	Recordkeeping for alternatives for process vents								

Regulatory Basis	Report Item	2021B	2021A	2020B	2020A	2019B	2019A	Status	Comments
63.182(d)(2)(i)	# valves leaking								
(i)	% leaking valves								
(i)	total valves monitored								
(ii)	# leaking valves not repaired								
(ii)	# leaking valves determined nonrepairable								
(iii)	# pumps leaking								
(iii)	% leaking pumps								
(iii)	total pumps monitored								
(iv)	# leaking pumps not repaired								
(v)	# compressors leaking								
(vi)	# leaking compressors not repaired								
(vii)	# leaking agitators								
(viii)	# leaking agitators not repaired								
(ix)	# leaking connectors								
(ix)	% leaking connectors								
(ix)	total connectors monitored								
(xi)	# leaking connectors not repaired								
(xi)	# leaking connectors determined nonrepairable								
(xiii)	Facts explaining "delay of repair" and why process unit shutdown not feasible								
(xiv)	Compressor monitoring results showing <500ppm above BG								
(xiv)	Pressure relief device monitoring results showing <500ppm above BG								
(xiv)	Results of inital inspections of closed-vent systems w/hard-piping								
(xiv)	Results of annual visual inspections of closed vent systems w/hard-piping								
(xiv)	Results of inital inspections of closed-vent systems w/duct-work								
(xiv)	Results of annual inspections of closed-vent systems w/duct-work								
(xv)	Whether a monthly monitoring program for process units with >2% leaking valves was initiated (if applicable)								
(xv)	Whether a QIP for valves was initiated (if applicable)								
(xv)	Whether a QIP for pumps was initiated (if applicable)								
(xvi)	Notification of a change in connector monitoring alternatives (if applicable)								
(xvii)	Statement of compliance option taken (63H or 264BB)								
63.182(d)(3)(i)	Identification of batch process equipment train (if applicable)								
(ii)	# pressure tests conducted (if applicable)								
(iii)	# failed pressure tests (if applicable)								
(iv)	Explanation of any "delay of repair" (if applicable)								
(v)	Monitoring results to determine compliance with closed-vent inspection requirements (if applicable)								

Regulatory Basis	Report Item	2021B	2021A	2020B	2020A	2019B	2019A	Status	Comments
63.182(d)(4)	Information about process units with later compliance dates (notification of compliance status). Information about process units with revisions to items reported in earlier Notification of Compliance Status (if changed)								

Exhibit 18

LDAR Recordkeeping

(b)(1)(i)	List of identification numbers for equipment* with total number of connectors indicated. Equipment includes Valves, Pumps, Agitators, Compressors, PRDs, Total count of connectors.
(b)(1)(ii)	Monitoring Schedule for Valves and Connectors subject to 63.174
(b)(1)(iii)	Equipment identified on a site plan, log entries, or other method
(b)(2)(i)	List of identification numbers for equipment that is equipped with a Closed-vent systems and control devices
(b)(2)(ii)	List of identification numbers for compressors w/<500ppm above background
(b)(2)(iii)	Identification of surge control vessels or bottom receivers equipped with closed-vent system and control device
(b)(3)(i)	List of identification numbers for pressure relief devices
(b)(3)(ii)	List of identification numbers for pressure relief devices equipped with a rupture disk
(b)(4)	Identification of instrumentation systems, only the system not individual components
(b)(5)	Identification of screwed connectors using alternative of being monitored once within 3 months of returning to service if installed prior to 1992
(b)(6)(i)	Information logged for Dual Mechanical Seals system: Design criteria to indicate leak and explanation for pumps, compressors and agitators
(b)(6)(ii)	Any changes to these criteria and reason for change
(b)(7)	Record of information for pump UTM, valves UTM, DTM, Agitators UTM, DTM, connectors UTM, UTR
(b)(7)(i)	Identification of equipment UTM, DTM, UTI and Plan
(b)(7)(ii)	List of Identification numbers for equipment that is designated as DTM and explanation why and planned schedule
(b)(7)(iii)	List of identification numbers for connectors that are designated as UTR and explanation why

Facility Code	Inspection Point Number	Tag Number	Barcode	Inspection Point Status	Hazardous Waste Mgmt Unit	Area (ultimate parent)	Subarea (parent)	Equipment Type	Equipment	# Connectors	Location	Facility Drawing Reference	Facility Drawing Name	Waste Type	Percentage by Weight	Unsafe to Monitor	Difficult To Monitor	Reason DTM	In Service Date	Removal Date	Override Inspection Freq	Monitoring Method

(b)(8)(i)	List of valves removed from and added to process unit if the net credits for removed valves is expected to be used																					
(b)(8)(ii)	A list of connectors removed from and added to the process unit and documentation of the integrity of the weld for any removed connectors. Not required unless the net credits for removed connectors is expected to be used.																					
Facility Code	Inspection Point Number	Tag Number	Barcode	Inspection Point Status	Hazardous Waste Mgmt Unit	Area (ultimate parent)	Subarea (parent)	Equipment Type	Equipment	# Connectors	Location	Facility Drawing Reference	Facility Drawing Name	Waste Type	Percentage by Weight	Unsafe to Monitor	Difficult To Monitor	Reason DTM	In Service Date	Removal Date	Override Inspection Freq	Monitoring Method

Recordkeeping

63.181(c)	**Visual inspections on weekly pumps, shall document inspection was conducted and the date of the inspection. Retain for 2 years**
(d)(1)	**For each leak pump, compressor, valve, HL equipment, instrumentation systems, PRD in liquid, CVS & CD, agitators, connectors, document instrument and equipment identification number and operator name,**
(d)(2)	**The date the leak was detected and the date of first attempt to repair leak**
(d)(3)	**The date of successful repair**
(d)(4)	**Maximum instrument reading measured by Method 21 after it is successfully repaired or determined nonrepairable**
(d)(5)	**"Repair delayed) and reason for delay if not repaired within 15 days of discovery of leak**

Process Unit	Area	Subarea	Tag #	Equipment	Location	Monitoring Frequency	Regulatory Leak Threshold	Monitoring Technician	Instrument	Initial (1st) Monitoring Date	1st Reading (PPM)	Pass/Fail	Repair Technician	1st Attempt to Repair (Date)	1st Repair Method	Monitoring Technician	Instrument	2nd Monitoring Date	2nd Reading (PPM)	Pass/Fail

Recordkeeping

63.181(d)(6)	Dates of process unit shutdowns that occur while the equipment is
Date	**Process Unit Shutdown**

Recordkeeping

63.181(d)(7)	The date and results of monitoring for opened or seal broken connectors. All connectors monitored in location if grouped by location																		
Process Unit	Area	Subarea	Tag #	Equipment	Location	Monitoring Frequency	Regulatory Leak Threshold	Monitoring Technician	Instrument	Initial (1st) Monitoring Date	1st Reading (PPM)	Pass/Fail	Repair Technician	1st Attempt to Repair (Date)	1st Repair Method	Monitoring Technician	Instrument	2nd Monitoring Date	2nd Reading (PPM)	Pass/Fail

(g)	Maintain record of information for CVS and CD
(g)(1)(i)	Design schematics, specification of CD and P&IDs
(g)(1)(ii)	Dates and descriptions of any changes in the design specifications
(g)(1)(iii)	Flare design and results of compliance demonstration
(g)(1)(iv)	Description of parameter or parameters monitored to ensure CD are operated and maintained in conformance with their design and explanation of why that parameter was selected for monitoring
(g)(2)	Records of operation of CVS and CD
(g)(2)(i)	Dates and durations when the CVS and CD are not operated as designed by monitoring parameters, including periods when a flare pilot light system does not have a flame
(g)(2)(ii)	Dates and durations during which the monitoring system or monitoring device is inoperative
(g)(2)(iii)	Dates and duration of start-ups and shutdowns of control devices
(g)(3)	Record of inspections of CVS
(g)(3)(i)	If no leaks detected, record that inspection was performed, the date of inspection and statement that no leaks were detected

CVS	CD	Date of Changes	Description of Change	Date of Compliance Demonstration of Flare	Description of Parameter	Record of Operation	Date of Non-operation	Duration of Non-operation	Date of Startups CD	Date of Shutdown of CD	Record of Inspection	Date of Inspection	No Leaks Detected	Leaks Detected	Date of Repair	Repair Technician	Repair Action	Monitoring Date	Monitoring Technician	Monitoring Instrument	Reading (PPM)

Exhibit 19

Semi-Annual Report

Semi-Annual Report
40 CFR Part 63 Subpart H
(40 CFR Part 264 Subpart BB, 40 CFR Part 63 Subpart DD)

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

I. 40 CFR 63.182(d)(2)(i)-(xiii), CAAPP Permit

Date	Process Unit: Hazardous Waste Storage					
2019	Equipment	Number Found Leaking	Total Monitored	% Percent Found Leaking	Number Not Repaired	Number Determined Non-Repairable
July	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
August	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
September	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
October	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
November	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
December	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
	Total:					

Facts explaining delay of repair and why process unit shutdown was not feasible:

Dates and duration of process unit shutdown:

Semi-Annual Report
40 CFR Part 63 Subpart H
(40 CFR Part 264 Subpart BB, 40 CFR Part 63 Subpart DD)

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

Date	Process Unit: Non-hazardous Waste Storage					
2019	Equipment	Number Found Leaking	Total Monitored	% Percent Found Leaking	Number Not Repaired	Number Determined Non-Repairable
July	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
August	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
September	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
October	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
November	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
December	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
	Total:					

Facts explaining delay of repair and why process unit shutdown was not feasible:

Dates and duration of process unit shutdown:

Semi-Annual Report
40 CFR Part 63 Subpart H
(40 CFR Part 264 Subpart BB, 40 CFR Part 63 Subpart DD)

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

Date	Process Unit: Dryer 1					
2019	Equipment	Number Found Leaking	Total Monitored	% Percent Found Leaking	Number Not Repaired	Number Determined Non-Repairable
July	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
August	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
September	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
October	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
November	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
December	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
	Total:					

Facts explaining delay of repair and why process unit shutdown was not feasible:

Dates and duration of process unit shutdown:

Semi-Annual Report
40 CFR Part 63 Subpart H
(40 CFR Part 264 Subpart BB, 40 CFR Part 63 Subpart DD)

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

Date	Process Unit: Dryer 2					
2019	Equipment	Number Found Leaking	Total Monitored	% Percent Found Leaking	Number Not Repaired	Number Determined Non-Repairable
July	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
August	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
September	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
October	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
November	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
December	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
	Total:					

Facts explaining delay of repair and why process unit shutdown was not feasible:

Dates and duration of process unit shutdown:

Semi-Annual Report
40 CFR Part 63 Subpart H
(40 CFR Part 264 Subpart BB, 40 CFR Part 63 Subpart DD)

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

Date	Process Unit: Dryer 3					
2019	Equipment	Number Found Leaking	Total Monitored	% Percent Found Leaking	Number Not Repaired	Number Determined Non-Repairable
July	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
August	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
September	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
October	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
November	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
December	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
	Total:					

Facts explaining delay of repair and why process unit shutdown was not feasible:

Dates and duration of process unit shutdown:

Semi-Annual Report
40 CFR Part 63 Subpart H
(40 CFR Part 264 Subpart BB, 40 CFR Part 63 Subpart DD)

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

Date	Process Unit: Dryer 4					
2019	Equipment	Number Found Leaking	Total Monitored	% Percent Found Leaking	Number Not Repaired	Number Determined Non-Repairable
July	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
August	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
September	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
October	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
November	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
December	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
	Total:					

Facts explaining delay of repair and why process unit shutdown was not feasible:

Dates and duration of process unit shutdown:

Semi-Annual Report
40 CFR Part 63 Subpart H
(40 CFR Part 264 Subpart BB, 40 CFR Part 63 Subpart DD)

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

Date	Process Unit: Transfer Pipelines					
2019	Equipment	Number Found Leaking	Total Monitored	% Percent Found Leaking	Number Not Repaired	Number Determined Non-Repairable
July	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
August	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
September	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
October	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
November	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
December	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
	Total:					

Facts explaining delay of repair and why process unit shutdown was not feasible:

Dates and duration of process unit shutdown:

Semi-Annual Report
40 CFR Part 63 Subpart H
(40 CFR Part 264 Subpart BB, 40 CFR Part 63 Subpart DD)

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

Date	Process Unit: Pumps					
2019	Equipment	Number Found Leaking	Total Monitored	% Percent Found Leaking	Number Not Repaired	Number Determined Non-Repairable
July	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
August	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
September	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
October	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
November	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
December	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
	Total:					

Facts explaining delay of repair and why process unit shutdown was not feasible:

Dates and duration of process unit shutdown:

Semi-Annual Report
40 CFR Part 63 Subpart H
(40 CFR Part 264 Subpart BB, 40 CFR Part 63 Subpart DD)

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

Date	Process Unit: LUWA (future)					
2019	Equipment	Number Found Leaking	Total Monitored	% Percent Found Leaking	Number Not Repaired	Number Determined Non-Repairable
July	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
August	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
September	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
October	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
November	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
December	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
	Total:					

Facts explaining delay of repair and why process unit shutdown was not feasible:

Dates and duration of process unit shutdown:

Semi-Annual Report
40 CFR Part 63 Subpart H
(40 CFR Part 264 Subpart BB, 40 CFR Part 63 Subpart DD)

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

Date	Process Unit: Distillation Column					
2019	Equipment	Number Found Leaking	Total Monitored	% Percent Found Leaking	Number Not Repaired	Number Determined Non-Repairable
July	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
August	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
September	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
October	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
November	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
December	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
	Total:					

Facts explaining delay of repair and why process unit shutdown was not feasible:

Dates and duration of process unit shutdown:

Semi-Annual Report
40 CFR Part 63 Subpart H
(40 CFR Part 264 Subpart BB, 40 CFR Part 63 Subpart DD)

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

Date	Process Unit: Dehydration Unit (OOS)					
2019	Equipment	Number Found Leaking	Total Monitored	% Percent Found Leaking	Number Not Repaired	Number Determined Non-Repairable
July	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
August	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
September	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
October	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
November	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
December	Valves					
	Pumps					
	Compressors					
	Agitators					
	Connectors					
	Total:					

Facts explaining delay of repair and why process unit shutdown was not feasible:

Dates and duration of process unit shutdown:

Semi-Annual Report
40 CFR Part 63 Subpart H
(40 CFR Part 264 Subpart BB, 40 CFR Part 63 Subpart DD)

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

II. Compressor monitoring results 63.182(d)(2)(xiv) See Attachment A

Pressure relief monitoring results 63.182(d)(2)(xiv)

Results of initial/annual inspection of CVS with hard piping 63.182(d)(2)(xiv)

Results of initial/annual inspection of CVS with duct work 63.182(d)(2)(xiv)

III. Whether monthly monitoring program initiated for process units with valves with >2% leaking 63.182(d)(2)(xv)

Whether a QIP for valves was initiated 63.182(d)(2)(xv)

Whether a QIP for pumps was initiated 63.182(d)(2)(xv)

IV. Notification of a change in connector monitoring 63.182(d)(2)(xvi)

V. Statement of compliance option taken (63H or 264BB) 63.182(d)(2)(xvii)

VI. Identification of batch process equipment train, if applicable 63.182(d)(3)(i)

Number of pressure tests conducted 63.182(d)(3)(ii)

Number of failed pressure tests 63.182(d)(3)(iii)

Explanation of any delay of repair 63.182(d)(3)(iv)

Monitoring results to determine compliance with closed-vent inspection requirements 63.182(d)(3)(v)

Semi-Annual Report
40 CFR Part 63 Subpart H
(40 CFR Part 264 Subpart BB, 40 CFR Part 63 Subpart DD)

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

VII. Information about process unit with later compliance dates (notification of compliance status) 63.182(d)(4)

Information about process units with revisions to items reported in earlier Notification of Compliance Status (if changed) 63.182(d)(4): See Attachment B

Semi-Annual Report
40 CFR Part 63 Subpart H
(40 CFR Part 264 Subpart BB, 40 CFR Part 63 Subpart DD)

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

ATTACHMENT A

MONITORING RESULTS

Company: Clean Harbors Recycling Services of Ohio, LLC
Reporting Timeline: July 1, 2019-December 31, 2019

ATTACHMENT B

REVISIONS TO THE NOTIFICATION OF COMPLIANCE STATUS